

1 UNITED STATES BANKRUPTCY COURT
2 FOR THE WESTERN DISTRICT OF NORTH CAROLINA
3 CHARLOTTE DIVISION

4 IN RE:

5 GARLOCK SEALING TECHNOLOGIES, No. 10-BK-31607
6 LLC, et al,
Debtors.

VOLUME VI-B
AFTERNOON SESSION
MONDAY, JULY 29, 2013

9 TRANSCRIPT OF ESTIMATION TRIAL
10 BEFORE THE HONORABLE GEORGE R. HODGES,
UNITED STATES BANKRUPTCY JUDGE

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James H. Shoemaker...	1634.....	1649,1689..	1651,1711...	1691

E X H I B I T S

Debtors' Exhibits No.: ADMITTED

GST-15518.....1688
GST-15570.....1716

ACC's Exhibits No: ADMITTED

ACC-3781.....1688
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Cross - Longo

P R O C E E D I N G S

(On the record at 1:48 p.m.)

THE COURT: Okay. I think we were with you,
Mr. Harris.

MR. HARRIS: I believe Mr. Guy wanted to --

THE COURT: That's right. I forgot about you
again.

MR. GUY: That's right, Your Honor. We're still
here, even though we're quiet.

CROSS-EXAMINATION

BY MR. GUY:

Q. Dr. Longo, my name is Jonathan Guy. I represent
the future claimants' representative in this case.
Joseph Grier, III is here in the courtroom.

A. Yes, sir.

Q. And you were not retained by the FCR; correct?

A. That's correct.

Q. You were retained by the ACC?

A. I think so.

Q. And you've never met me or Mr. Grier before, have
you?

A. I have not.

Q. Now we're listening with great interest to your
testimony and the testimony on the other side on these
issues. And we're actually, unlike many people in the

Cross - Longo

1 courtroom, hearing it for the first time along with Judge
2 Hodges. I want to ask you about your 2002 study. That
3 concerned fiber release; correct?

4 A. Yes, sir.

5 Q. Asbestos fibers?

6 A. That's correct.

7 Q. And we've heard before, earlier last week, about
8 dust. But the important thing is asbestos fibers, is it
9 not?

10 A. Yes, sir. In those studies, dust was being
11 released. But, in that dust was asbestos dust from those
12 gaskets.

13 Q. If there was no asbestos fiber in there we
14 wouldn't be talking about it, would we?

15 A. No, sir, we wouldn't.

16 Q. Now that study was 2002?

17 A. Yes, sir.

18 Q. And the order from the Texas court was 2001;
19 correct?

20 A. July of 2001.

21 Q. And who was it who contacted the editor of the
22 paper where your article was going to be published? Was
23 it Mr. Boelter or Mr. Mangold?

24 A. Mr. Mangold wrote a letter. And Mr. Liukonen
25 was the one who contacted the editor directly, I think,

Cross - Longo

1 by telephone. As far as I know, Mr. Boelter was not
2 involved.

3 Q. So that would be Mr. Liukonen and Mr. Boelter
4 who were both the debtors' experts in this case?

5 A. Yes, sir.

6 Q. And when did they contact the editor?

7 A. It looks like it was around -- I'd have to -- I
8 can -- hold on.

9 Q. Just approximately.

10 A. Around October of 2001 or so; in that time frame.

11 Q. So, Garlock was well aware of your views about the
12 exposure to asbestos fibers in connection with asbestos-
13 containing gaskets prior to 2005; correct?

14 A. Yes, sir. They were very aware.

15 Q. The views that you articulated in your 2002
16 report, have they changed, fundamentally, from 2002 to
17 today?

18 A. No, sir.

19 Q. No further questions, Your Honor.

20 THE COURT: Okay. Thank you.

21 All right, Mr. Harris.

22 MR. HARRIS: Thank you, Your Honor.

23 **CROSS-EXAMINATION**

24 BY MR. HARRIS:

25 Q. Good afternoon, Dr. Longo.

Cross - Longo

1 A. Good afternoon, Mr. Harris.

2 Q. You agree that you have to have reliable
3 information to draw scientific conclusions?

4 A. Yes, sir.

5 Q. You want to make sure that the data is reported
6 accurately. True?

7 A. That is true.

8 Q. You want to make sure that records are kept.
9 True?

10 A. Yes, sir.

11 Q. You want to make sure that accepted scientific
12 methods were used --

13 A. Yes, sir.

14 Q. -- and Actually followed.

15 A. That's correct.

16 Q. You want to make sure that quality control
17 procedures were implemented --

18 A. That is correct.

19 Q. -- and actually followed?

20 A. Yes, sir.

21 Q. You want to make sure that the researcher has
22 maintained his or her objectivity --

23 A. That is correct.

24 Q. -- and made full disclosures of all conflicts and
25 financial interests. True?

Cross - Longo

1 A. Yeah, that's true. At certain times, journals
2 today require it. In the early years they didn't require
3 it. But that's correct, now you have to. But in the
4 late '90s and early 2000s journals weren't as adherent to
5 that policy as they are now.

6 Q. If these things aren't done, then there's reason
7 to question the reliability of the conclusions provided;
8 correct?

9 A. Well, yes and no. Certainly, if these things
10 aren't done that affect the data and changes the --
11 changes the magnitude of the data, absolutely. If
12 there's errors, and we've had a few. And if it does not
13 impact the actual data, then, no. So you have to look at
14 each case individually.

15 Q. You once did a study on the potential exposure
16 from removing spiral wound gaskets. True?

17 A. In the late '90s. That's true.

18 Q. You designed the protocol?

19 A. Yes, sir.

20 Q. Obtained materials for the study?

21 A. Yes, sir.

22 Q. Set up the Tyndall Lights inside the chamber?

23 A. That's correct.

24 Q. Hooked up the air sampling equipment?

25 A. Yes, sir.

Cross - Longo

1 Q. Went about removing the spiral wound gaskets as
2 you had in other gasket studies; correct?

3 A. Correct.

4 Q. And compiled and produced a report.

5 A. That is correct.

6 Q. You reported that removing spiral wound gaskets
7 resulted in exposures above the OSHA limits. True?

8 A. I believe that's true. Yes, sir.

9 Q. You had either testified about it or you were
10 prepared to testify about that study; is that correct?

11 A. No, sir. I never testified about it.

12 Q. Well your colleague, Mr. Hatfield, who has
13 testified for years for MAS; correct?

14 A. Yes, sir, he testified about it.

15 Q. He works for you; correct?

16 A. Yes, sir. He's on medical leave, but he does work
17 for me.

18 Q. He participates in the studies that you've done?

19 A. Yes, sir.

20 Q. A co-author of your gasket papers and reports.

21 A. That's correct.

22 Q. And he, in fact, testified to the spiral wound
23 gasket study; correct?

24 A. That is correct.

25 Q. And then it was pointed out that a serious math

Cross - Longo

1 error had been made; correct?

2 A. That is correct.

3 Q. And the results that Mr. Hatfield had testified
4 to were four times higher than they actually were; right?

5 A. That's correct.

6 Q. They were below the OSHA limit; correct?

7 A. That's correct.

8 Q. In fact, they were below the OSHA limit.

9 A. That's correct.

10 Q. All right. You showed your Tyndall video from
11 Gasket Study IV. Were all the videos that you showed
12 that related to your gasket studies from IV?

13 A. Yes, sir, it was.

14 Q. So, when we see the Tyndall video, you do not know
15 the percentage of the dust that is actually asbestos from
16 looking at the video. Correct?

17 A. Well, yes and no. We haven't made the measurement
18 of the amount of asbestos in the dust, but we know the
19 percentages of the asbestos in the material. Say the
20 gasket is 80 percent, the thermal insulation is 15
21 percent, and they're pretty much a homogeneous mixture.
22 So it's unclear to me, scientifically, why it would be
23 outside those bounds.

24 Q. But you haven't done a study that confirms that.
25 True?

Cross - Longo

1 A. It's true that I can't devise a study that can
2 measure accurately the different components on an air
3 filter --

4 Q. Is it true, Dr. Longo? That's all I was asking.
5 Is it true or false?

6 A. Well you can't answer that just true and false.
7 What you can answer it is there's not a methodology to
8 distinguish by weight what's on an air filter in nanogram
9 amounts. I've not been able to come up with that.

10 Q. You can't determine from looking at the video the
11 percentage of dust seen that is of respirable size. Is
12 that true?

13 A. That's true, we don't do that.

14 Q. You agree that you're not an expert on cameras;
15 correct?

16 A. I agree.

17 Q. You're not an expert on photography. True?

18 A. I agree.

19 Q. You're not an expert on the physics of light;
20 correct?

21 A. That's true.

22 Q. This is an excerpt from your spiral wound gasket
23 study. True?

24 A. That is correct.

25 Q. I want to talk about your gasket studies that

Cross - Longo

1 you've done and your efforts to design or to go about
2 designing them. This is an advertisement for your firm
3 from back in the early '90s; is that correct?

4 A. Yes, sir. I think that photograph was taken in
5 1989.

6 Q. So that's just back in the time when you were
7 getting ready to start testifying in the asbestos
8 personal injury litigation or asbestos property damage
9 litigation?

10 A. By that time, I believe, I already was involved in
11 property damage cases. I don't believe I became really
12 involved in asbestos containing personal injury cases
13 until the mid to late 1990s.

14 Q. You've done many gasket studies over the years;
15 correct?

16 A. I have.

17 Q. The early ones involved gluing a gasket to a metal
18 plate and then scraping and wire brushing and grinding
19 the gaskets off; is that correct?

20 A. Not off, but just the surface of the gaskets.
21 That part's correct.

22 Q. Right. And you testified about that this morning,
23 that it was about to -- those studies were intended to
24 detect fiber release?

25 A. Determine if there would be any fiber release,

Cross - Longo

1 like all our studies.

2 Q. But you called them Garlock and anchor gasket
3 workplace simulation demonstrations; correct?

4 A. Yes, sir.

5 Q. You called them "workplace simulations;" correct?

6 A. Right.

7 Q. You and Mr. Hatfield testified about them?

8 A. I think Mr. Hatfield has. I don't know if I've
9 testified about those or not. It was just the very first
10 study back in the late '90s.

11 Q. Those, in fact, are the only studies where you
12 know you actually removed a Garlock gasket or you abraded
13 a Garlock gasket in one of your studies. I shouldn't say
14 "abraded." You went through the process of removing a
15 gasket; correct?

16 A. Well, I think the better term is "abrading" it
17 because we didn't remove the gaskets. We just abraded
18 the surface. Again, as I was explaining earlier, it was
19 to see if a brand new gasket -- not brand new in
20 manufacturing. But a gasket that had not been put into a
21 system under elevated temperature and pressure, when you
22 abraded the surface, would it release fibers?

23 Q. So, your early study: Glue the gasket to a plate
24 and then start scraping and wire brushing it and
25 collecting air samples; is that correct?

1550

Cross - Longo

1 A. That's correct.

2 Q. And this is the results from one of those studies;
3 is that correct?

4 A. That's correct.

5 Q. And the exposure levels, these are short-term
6 exposures?

7 A. I believe so.

8 Q. 20-minute samples?

9 A. Yes, sir.

10 Q. And the range was from .72 to 1.28; correct?

11 A. Yes, sir.

12 Q. And if you time-weighted the 1.28 over 30 minutes
13 to make a comparison to the OSHA short-term exposure
14 limit, it would actually be below one fiber per cc;
15 correct?

16 A. I think it would be. Let's see. Let me just look
17 at the math here for a second. I think it would be
18 approximately .8.

19 Q. So it would be below the OSHA short-term exposure
20 limit; is that correct?

21 A. It would be -- yeah .1. Well, it's .8. Below .10.
22 Yes, sir.

23 Q. You understand, in the workplace, nobody's gluing
24 gaskets to a metal plate and then trying to remove them;
25 correct?

Cross - Longo

1 A. No, sir. I've never read any plaintiff gluing a
2 gasket to a metal plate. And again, as I explained
3 earlier, this had to do with looking at a brand new
4 gasket surface to see if abrading the surface of a brand
5 new asbestos-containing gasket would release measurable
6 fiber levels or is the material encapsulated so it cannot
7 release. That was the primary object here.

8 Q. So you moved on to studies where you actually
9 removed -- were removing gaskets from flanges; correct?

10 A. That is correct.

11 Q. Now, you're not an industrial hygienist or
12 Certified Industrial Hygienist; correct?

13 A. That's correct. I'm not a Certified Industrial
14 Hygienist.

15 Q. You're not even an industrial hygienist; correct

16 A. I've been qualified many times in the areas of
17 industrial hygienist. I would never call myself a broad-
18 based industrial hygienist in all areas of industrial
19 hygiene.

20 Q. You're not an expert on OSHA regulations with
21 respect to asbestos?

22 A. Yes, sir. I don't know the OSHA regulations
23 backwards and forwards, it's such a large document, but
24 I've read them routinely and interpreted them.

25 Q. Before you conducted these studies you had never

Cross - Longo

1 installed asbestos gaskets or packing in the workplace.

2 True?

3 A. That is correct.

4 Q. You had never seen asbestos gaskets or packing
5 used in the workplace. True?

6 A. That is correct.

7 Q. You had never conducted monitoring for asbestos in
8 the workplace; is that true?

9 A. That is correct.

10 Q. You designed the protocols for the gasket and
11 packing studies that you discussed earlier; correct?

12 A. Yes, sir.

13 Q. In the early studies, including the studies that
14 were published, you removed the gaskets yourself.

15 A. Yes, sir.

16 Q. When you remove gaskets from a flange that are
17 tightly adhered, or adhered, you cannot identify the
18 manufacturer of the gasket; is that correct?

19 A. That is correct.

20 Q. And you cannot state as a fact that in any of your
21 flange gasket studies you removed a Garlock gasket.
22 True?

23 A. That is true. The Gaskets are fungible. They're
24 all made the same way. So there's no way to analyze
25 them, that I'm aware of, to tell one from the other.

Cross - Longo

1 They're all going to behave the same.

2 Q. You understand there are military specifications,
3 and manufacturers try to get their gaskets on the QPLs to
4 be approved to sell to the military; correct?

5 A. Yes, sir, I agree.

6 Q. But it's not your contention -- you don't know
7 whether all manufacturers' compressed sheet gaskets
8 qualify or meet the military's specifications, correct?

9 A. No, sir. I'm not here to state that all
10 manufacturers meet the military specifications. What I'm
11 talking about is after the gasket has been on the flange
12 for a period of time, the compressed sheet gasket, and
13 they've degraded to the point where they are friable and
14 you're removing them, they're all going to have the same
15 characteristics. Obviously, if we're looking at brand
16 new gaskets you can tell one from the other, primarily,
17 because everyone puts their names on them.

18 Q. But you haven't done any studies to determine that
19 or confirm that. That's your opinion; correct?

20 A. No, sir, that's not my opinion. We have analyzed
21 these gaskets from all these different flanges and
22 valves. We have done GC mass spec, chemical organic
23 analysis. So, either two things have happened: We just
24 so happen to get the exact same gasket manufacturer for
25 every flange and valve we took that were removed from two

Cross - Longo

1 different places in the country, or these manufacturers
2 put the same ingredients in, the same concentration of
3 asbestos; they even cross-reference each other. So if
4 you buy this Garlock, you can use this John Crane,
5 etcetera. These compressed sheet gaskets are fungible.

6 Q. Do you know the difference between commercial
7 grade and premium grade gaskets?

8 A. The premium grade are for higher temperature and
9 pressure elevation. It has to do with the amount of
10 fiber, and it's cross-linked -- they're cross-linked in
11 the material. But that means that once this material has
12 become friable and degraded, it's my opinion you can't
13 tell the difference between them.

14 Q. You did not design any of your gasket studies,
15 gasket removal or gasket fabrications, with any
16 particular plaintiff in mind. True?

17 A. Only one. But the rest of that is true.

18 Q. Only one? Are you talking about your compressor
19 studies?

20 A. Yes, sir.

21 Q. That's different. We haven't talked about those
22 yet. You have not reviewed any of the information
23 submitted by the current claimants in this proceeding;
24 right?

25 A. That is correct.

Cross - Longo

1 Q. You haven't reviewed any of the supplemental
2 questionnaires or depositions or any of the depositions
3 that were submitted by the current plaintiffs; correct?

4 A. That is correct.

5 Q. In your Gasket Studies IV and V and the Crane
6 Valve Study that you did, you removed a gasket -- removed
7 the gaskets using the 11,000 RPM grinder; is that
8 correct?

9 A. That is correct.

10 Q. This is a picture from your Crane Valve Study;
11 correct?

12 A. Correct.

13 Q. And I believe you made some mention before that
14 the wire wheel was hitting the guard and that was what
15 was causing the sparks that we saw in the video. But, in
16 fact, that's not what you're saying. Some of the sparks
17 came from hitting the guard, but you took the guard off
18 to do the Crane Valve Study; correct?

19 A. Well, not quite. We were talking about the one
20 high speed grinder that failed. Actually, the motor
21 burned up. And we were talking about the suggestion that
22 the reason that happened is because the grinder was being
23 pressed so hard onto the flange surface that we were
24 grinding into the flange and it burned up. That was not
25 the case for that. That's what we showed. I also

Cross - Longo

1 testified though, as I recall earlier when we talked
2 about it, that when these wire brushes do hit some of
3 these steel posts and some of the surfaces, you do get
4 some sparks.

5 Q. Okay. Well, I mean you got sparks back in the
6 other study that weren't related to the guard and you're
7 getting sparks here. True?

8 A. Well, the sparks there is coming off the bolt.
9 But I never said you don't get sparks. I was talking
10 about why that particular grinder failed, not because it
11 was being pushed into the flange surface and burned the
12 motor up because of the guard.

13 Q. Now you presented a table in your report and, I
14 believe, in your direct testimony of the different
15 grinding studies that you've done and what the results
16 were. Is that true?

17 A. That's true.

18 Q. And you compared Study III where a drill was used
19 with the other grinding studies; correct?

20 A. Correct.

21 Q. And I notice that actually, though, in the Crane
22 Valve Study, for the helper that's standing right next to
23 the worker, that you didn't show, you actually got 77
24 fibers per cc; correct?

25 A. That -- if you -- and that's correct. But that

Cross - Longo

1 was with the Bonnet gaskets. The Bonnet Gaskets are much
2 bigger. I was comparing all the flange gaskets on each
3 flange so that we could compare one to the other. With
4 the electric drill versus the flange gaskets on the -- on
5 the Gasket Studies IV, V -- IV and V in the Crane, just
6 the gasket. I'm sorry.

7 Q. I'm sorry?

8 A. Just the gasket studies.

9 Q. You haven't done any studies or any research to
10 determine whether these 11,000 RPM grinders, electric
11 grinders, were available in the 1950s or 1960s. True?

12 A. That's true. We haven't been able to determine
13 that. And I'm not suggesting that the 11,000 RPM
14 grinders were available. I'm not suggesting that they
15 were or they weren't. What I'm saying is that the use of
16 these 11,000 RPM grinders does not bias the data as shown
17 by your data.

18 Q. My question was simple. You haven't done any
19 research to determine whether this was a common tool in
20 the 1960s. True?

21 A. I've not been able to buy a 1950 or 1960 grinder,
22 but I'm not disputing that they may not.

23 Q. You're not aware of any testimony from anybody who
24 said they used 11,000 RPM electric grinders in the 1960s
25 to remove gaskets; correct?

Cross - Longo

1 A. That is correct. The reason we used that grinder
2 is the Journeyman Pipefitter who did the study was -- I
3 asked him just to purchase the tools that he used.

4 Q. Yes. But you didn't ask him what time period in
5 which he used the tools; correct?

6 A. That is correct.

7 Q. Okay. Now, this situation here where we're
8 causing sparks using a grinder. If you were going to do
9 that type of work in a refinery or a chemical plant,
10 you'd actually have to get a Hot Work Permit. True?

11 A. True. You wouldn't use that in a -- in a
12 situation where there could be an explosion. You would
13 use a pneumatic grinder and you would use a brass wire
14 brush.

15 Q. Okay. But here in your studies where you're
16 getting your high -- this high or higher studies, you're
17 using a steel wheel on an 11,000 RPM grinder; correct?

18 A. That is correct, but --

19 Q. Let me show you some testimony from the
20 Committee's experts. Roger Beckett, who was in charge of
21 industrial hygiene at the Puget Sound Naval Shipyard
22 during the '70s, '80s, and the first part of the 1990s.
23 You've read his deposition testimony.

24 (Videotaped deposition of Roger Beckett plays.)

25 BY MR. HARRIS:

Cross - Longo

1 Q. So that type of tool wasn't used at the Puget
2 Sound Naval Shipyard.

3 We also asked the Committee's expert James
4 Shoemaker, and I believe he's sitting in the courtroom
5 and will testify next. We asked him whether they had
6 those grinders there.

7 Q. "Do you even know whether 10,000 RPM
8 electric grinders were available in the United States
9 in the '60s?"

10 A. "10,000 RPM electric grinders? "

11 Q. "Yes."

12 A. "No. I don't know that. We did not use,
13 generally use electric tools on a ship because of
14 the shock hazard. Normally we used pneumatic
15 tools."

16 Q. "All right. Are you aware of 10,000 RPM
17 grinders that were used by pipefitters in the
18 1960s in the shipyard?"

19 A. "No."

20 But you did say that you used a brass wire brush
21 in your Crane Valve Study; correct?

22 A. Correct.

23 Q. And we talked about this at your deposition. I
24 showed you a picture -- this picture of the brass wire
25 brush actually comes from your study; correct?

Cross - Longo

1 A. Correct.

2 Q. The catalog number is 77735. There's the catalog
3 produced by the manufacturer. The manufacturer says that
4 for the brass wire brush, for that are catalog number,
5 the maximum safe speed is 7,000 RPMs. Correct?

6 A. That's correct.

7 Q. You used the brass wire brush at a speed that was
8 higher than it was rated for. True?

9 A. It may have.

10 Q. In addition to using the brass wire brush at a
11 higher speed, you used the steel wheel that we talked
12 about.

13 A. Yes, sir.

14 Q. This is a carbon steel wheel; correct?

15 A. That is correct.

16 Q. Carbon steel wheels like this -- the carbon steel
17 in these wheels is hard metal; correct?

18 A. Yes, sir.

19 Q. This is just more pictures of sparks.

20 Now in your report, we talked to you about this --
21 you discussed this. You brought this up on your own in
22 your initial report in the case. You said, "First, a
23 simple rule used in material science demonstrates why
24 these Garlock experts are wrong when they say workers
25 would never use wire brushes to remove the old gaskets

Cross - Longo

1 because of the potential damage to the steel flanges.

2 The rule that a softer material cannot scratch a harder

3 material. In this case, the wire brushes are a harder

4 material than a synthetic rubber asbestos gasket but a

5 softer material than a steel flange. This allows the use

6 of a wire brush to remove the old gasket without damaging

7 the steel flange surface."

8 You wrote that, true?

9 A. That's true.

10 Q. Now, in response to this comment in your report,

11 we engaged Drew Van Orden of the RJ Lee Group to evaluate

12 the hardness of tools that were identical or similar to

13 the ones you used, and to compare that to flanges. He

14 concluded, based on his analysis, that the materials in

15 the carbon steel wire wheel and the wire brushes was

16 harder than what you would expect from typical flanges.

17 Do you recall reading his report?

18 A. I do.

19 Q. And I understand that when you read his report

20 that you then sent the tools out to your own

21 metallurgist, or a colleague of yours who is a

22 metallurgist, specializes in metallurgy, which is a

23 material of material science. Correct?

24 A. Correct. He was a --

25 Q. And he said the same thing. He said that the wire

Cross - Longo

1 brushes on the carbon -- on the steel wheels would be
2 harder than on the flanges that you sent him. Correct?

3 A. That's correct.

4 Q. That's what he said.

5 A. That's what he said. But he also said because of
6 the flexibility of wire, you can't look at just the
7 hardness testing. The hardness testing, or Vickers
8 testing, involves taking the wire, mounting it in
9 plastic, and then indenting the end of the wire so the
10 wire is held stiff. You have to take in the flexibility
11 of the wire and the flexibility of the material. There
12 is no damage that is done to these flanges when they're
13 removing the gaskets with these materials.

14 Q. That's not what you said in your report before.

15 A. We talked about that in my deposition, and I
16 agreed that it was very inartfully written.

17 Q. So you were using this hard -- this carbon steel
18 wheel. Let me just ask you -- well, we'll come back to
19 it in a second.

20 You were using the carbon steel wheel on a brass
21 flange in your Crane Valve Study; right? You had three
22 brass flanges out of five?

23 A. No.

24 Q. Well, you said at your deposition that they were
25 -- you had three brass flanges out of five; correct?

Cross - Longo

1 A. No. I did say that in my deposition. And I based
2 that on the pipefitter, that he thought they were brass.
3 I've sat down with Mr. Shoemaker and we've looked over
4 these flanges, and it's expert opinion that these flanges
5 are all -- these valves are all steel. He can tell you
6 why when he gets up on the stand.

7 Q. We asked to look at those flanges and you said you
8 no longer had them.

9 A. That's correct.

10 Q. You don't have them?

11 A. I do not.

12 Q. So you didn't actually -- you looked at
13 photographs of the flanges with Mr. Shoemaker?

14 A. Yes. In fact, it was so simple, I felt kind of
15 foolish about the real -- why these are steel flanges.
16 If you look at the pictures in place, you'll see that
17 there is rust on the flange.

18 Q. Okay.

19 A. And the rusting can't rusting can't happen. One,
20 brass valves are never used in steam systems. So if you
21 have a yellow metal valve, it has to be bronze. Bronze
22 cannot rust. As a material scientist, I feel almost
23 foolish I didn't recognize this. So these are all steel
24 flanges that we used, all five, according to
25 Mr. Shoemaker.

Cross - Longo

1 Q. I thought you said at your second deposition that
2 they were bronze flanges, not brass.

3 A. I called Mr. Shoemaker and described the color of
4 the flange. And he said, one, no bronze -- no brass
5 valves are ever used because the steam and because of the
6 danger; and, because it has this kind of color, it ought
7 to be a bronze. Mr. Shoemaker's now had an opportunity
8 to look at all the photos, and that's opinion it's steel.

9 Q. Okay. That's his opinion. He's not a material
10 scientist; right?

11 A. Well --

12 Q. No. My question is, as far as you know, he's not
13 a material scientist. Is that true or false?

14 A. He's not a material scientist. He's an expert in
15 piping. Excuse me. He's an expert on the piping.

16 Q. My only question was --

17 A. I know as a material scientist bronze and brass
18 cannot rust.

19 Q. Dr. Longo, so you are the -- supposedly, you are
20 the material scientist. That's your claimed area of
21 expertise. You've identified now that theses are brass,
22 they're bronze and they're steel. Is that true?

23 A. That's true.

24 Q. All three times under oath and all three times
25 with certainty; correct?

Cross - Longo

1 A. That's true.

2 Q. So, you do understand that using a carbon steel
3 wheel with 11,000 RPM grinder can damage a brass flange.
4 True?

5 A. I would agree that you could take some type of
6 energy and grinding and at some point damage a flange. I
7 would agree with that.

8 Q. That's true. So the answer is true?

9 A. It's true if you have a bare flange and you use a
10 carbon steel at 11,000 RPM, at some point it's going to
11 damage it.

12 Q. Okay. And you've seen these photographs from
13 Mr. Boelter's demonstration. And you can see that brass
14 flanges can be damaged with the carbon steel wheel like
15 the one that was used in your study; correct?

16 A. Yes and no. Certainly, you can take a carbon
17 steel brush at 11,000 RPM. And if you keep it long
18 enough on the flange -- and I think he used the exact
19 timing that we used when we removed the gaskets from the
20 flange surface. The difference is, is that we're not
21 spending the one minute or two minute or three minutes
22 like Mr. Boelter did just grinding a bare flange
23 surface. We're removing gaskets. The gasket is being
24 removed and the energy dissipated. At some point when
25 the gasket is removed there is some minor polishing of

Cross - Longo

1 the flange, but it's not the same. So you can't compare
2 what Mr. Boelter did with our studies, in my opinion.

3 Q. The bronze flange can be damaged with a steel
4 wheel. True?

5 A. I'm sorry?

6 Q. The bronze flange can also with damaged with a
7 carbon steel wheel?

8 A. Yes, sir, at some point.

9 Q. Stainless steel flange can be damaged with the
10 carbon steel wheel like the one that you used; correct?

11 A. At some point, that's correct. But it's not --

12 Q. In fact, the American Society of Mechanical
13 Engineers recommends against using carbon steel brushes
14 on stainless steel flanges. True?

15 A. That's true. None of our flanges, of course, were
16 stainless steel. But that's true.

17 Q. All right. But do you know what type of steel
18 they were?

19 A. They were carbon steel.

20 Q. The ones that were brass and now bronze and then
21 became steel, they're a carbon steel?

22 A. That's what they make those -- I know it's
23 confusing. You know, we were told that's what they were
24 initially by the pipefitter. But looking at the
25 photographs and especially in its place, the rusting of

Cross - Longo

1 it really sets it off. It's almost silly we didn't pick
2 that up earlier.

3 Q. So, this is -- okay. We heard from Captain Wasson
4 week. Do you know Captain Wasson?

5 A. No, sir.

6 Q. He spent some time -- he had researched the
7 military specifications and military standards for the
8 type of flanges that were actually used on different
9 types of systems in the Navy. He illustrated for us that
10 there were 11 steam systems that were identified on
11 surface ships in the Navy and a number of those steam
12 systems actually used bronze flanges.

13 A. No, I know they do. Crane Co sells them. But
14 those aren't bronze flanges.

15 Q. Okay. This is a photograph -- we've seen this
16 before, last week, of the grinder burning up. This is
17 what you were talking about.

18 A. Yes, sir.

19 Q. And it was this -- the pipefitter -- actually, he
20 was a steamfitter, wasn't he, Mr. Holcomb, in his career?

21 A. He calls himself both. So, I don't know.

22 Q. Okay. He's the one that chose the materials.
23 True?

24 A. He chose the tools.

25 Q. You told him to choose the equipment that he would

Cross - Longo

1 use, correct, or that he used historically?

2 A. Yes, sir.

3 Q. And he chose this 11,000 RPM grinder with a steel
4 wheel that was too big for the guard that came on the
5 grinder; correct?

6 A. He did.

7 Q. Is that just a -- so, this is the person you
8 hired. You switched over to the steamfitter after Gasket
9 Studies I, II and III, and the glued gasket studies,
10 because you were drawing criticism because you had no
11 experience removing gaskets in the field and you wanted
12 to get an experienced pipefitter or steamfitter in to do
13 the work. At least that's what your side of the story
14 is; correct?

15 A. Well, not quite my side of the story. My side of
16 the story was we wanted to compare the
17 pipefitter/steamfitter because, as I've talked about, I
18 am not a Journeyman Pipefitter, and I wanted to compare
19 the results. They are comparable. Mr. Holcomb did pick
20 this grinder. Mr. Holcomb also said we need to take the
21 side guard off because that's what they typically did in
22 the field because of this problem. We said not to
23 because of the safety issue. Then the thing burned up.

24 Q. Okay. So he says that you've got to use this
25 grinder and you've got to use this steel wheel. But the

Cross - Longo

1 steel wheel doesn't fit and he doesn't realize it, and
2 then he burns out the grinder the first time he uses it.
3 True?

4 A. That's not quite true.

5 Q. But it's pretty close to true?

6 A. No.

7 Q. That sounds like what you basically said. So then
8 you go out and you buy a new grinder that comes with a
9 safety guard on it. And Mr. Holcomb says let's take off
10 the grinder so we can use the steel wheel?

11 A. No. We took off the safety guard because of the
12 problem of the wheel stretching out. Mr. Holcomb also
13 said that they don't put the guard on there because of
14 trying to -- when they grind off the gaskets. Trying to
15 get around the nooks and crannies, it inhibited them.
16 Now I don't say that's the best work procedure, but it's
17 what they did.

18 Q. Now, is it your testimony in this court that the
19 Journeyman Pipefitters don't use safety guards on their
20 grinders so they can use these steel wheels to remove the
21 gaskets?

22 A. That's what they say.

23 Q. This is a picture of not using the safety guard.
24 Is that an OSHA violation to use a grinder like that,
25 without having -- after you take off the safety guard?

Cross - Longo

1 A. That I don't know.

2 Q. Okay. But you would agree that if you're going to
3 do work like this the way Mr. Holcomb is doing it, you
4 need a Hot Work Permit in any work environment where
5 there's a potential fire or explosion hazard. True?

6 A. If there's an explosion hazard? Yes. I don't
7 know about every time you have to have a work permit.

8 Q. But you're not an industrial hygienist and you
9 don't understand when Hot Work Permits are actually
10 required. Correct?

11 A. Well, my -- as we pointed out earlier, my
12 industrial hygiene experience is involving asbestos
13 issues only. I am not a broad-based industrial
14 hygienist.

15 Q. So let's talk about the flanges that you used.
16 The first flanges came from a salvage yard from a
17 plaintiff's lawyer in Hawaii; correct?

18 A. That is correct.

19 Q. And then after that, you -- the flanges were
20 purchased from Dr. Gay; is that right?

21 A. That is correct.

22 Q. And those flanges were used in Gasket Studies II,
23 III, IV and V; correct?

24 A. Correct.

25 Q. Baron & Budd and other law firms contributed to

Cross - Longo

1 your purchase of those flanges; correct?

2 A. That is correct.

3 Q. The flanges that you bought from Dr. Gay have been
4 out of service for many years; correct?

5 A. Yes.

6 Q. The first studies, II and III, were done in 2000,
7 and IV and V were done in 2001. Correct?

8 A. Correct.

9 Q. These flanges have been out of service since at
10 least the early '90s; correct?

11 A. They were -- they were taken out in '93 or '94.
12 So, six years.

13 Q. And it's possible that the gaskets had been in
14 place even 20 years before that, based upon the
15 information that was provided to you. Correct?

16 A. That's possible.

17 Q. So it could have been that these gaskets have been
18 in these flanges for 20 years and then out of service for
19 six or seven years.

20 A. That's correct.

21 Q. For the Crane Valve Study, though, those -- we
22 know that those flanges were completely out of service
23 for 19 years; correct?

24 A. That is correct.

25 Q. The study was done in 2010, and the USS Lexington

Cross - Longo

1 was decommissioned in 1991. Correct?

2 A. Yes, sir.

3 Q. So the gaskets have been in there for at least 19
4 years, no service, and then we don't know how long they
5 have been in before the Lexington had gone out of
6 service. Correct?

7 A. No, sir. But that's typical, even when the
8 gaskets aren't out of service, is having knowledge how
9 long those gaskets have actually been in place. That's
10 what the pipefitters have to deal with all the time,
11 because they don't know if -- unless they've kept
12 records, you know, those gaskets could have been in two
13 years; they could have been in ten years; they could have
14 been in 15 years. That all plays a part in how much they
15 stick.

16 Q. Mr. Van Orden also, in his rebuttal report to
17 your report, commented on your use and reliance on these
18 gaskets that have been out of service for many years.
19 True?

20 A. True.

21 Q. He discussed how rubber degrades over time;
22 correct?

23 A. He stated that. This, of course --

24 Q. I believe you say in your published paper that
25 gaskets begin to deteriorate just as soon as they're

Cross - Longo

1 installed; correct? Do you recall saying something to
2 that effect?

3 A. Yes, sir, but that's two different things. That's
4 apples and oranges. What he's talking about is like a
5 rubber band being thrown in a drawer and losing its
6 elasticity. This is a synthetic, a Butadiene Rubber,
7 that has been sandwiched between two flange surfaces and
8 tightened down for a particular bolt load. The only way
9 those materials can start degrading over time is that
10 it's essentially been weathered, and these are not
11 weathered.

12 If you look at our data for the gaskets that have
13 been out of service for six to seven years, look at our
14 data for the gaskets that have been out of service for 19
15 years, and we don't see a big difference. In fact, the
16 Crane Co study which had more valves actually had lower
17 results in one end and higher results on the other end.
18 So this time issue doesn't seem to play any part in the
19 fiber release potential of these gaskets not that I can
20 see.

21 Q. In your opinion. True?

22 A. Well, not only my opinion. From the data. If you
23 have a set of gaskets, one being installed --

24 Q. My question was only that that was your opinion;
25 correct?

Cross - Longo

1 A. Well, it's opinion based on data.

2 Q. Okay. When gaskets are in service and they need
3 to be replaced, often they're going to be wet. Correct?

4 A. In some instances. But usually, if they're going
5 to be wet, it's because there's been a leak at one point.

6 And you have to remember, synthetic Butadiene Rubber
7 gaskets are hydrophobic. So it only is going to be wet
8 at the surface. It's not going to penetrate into the
9 gasket. The only way wetting a gasket would reduce fiber
10 levels is if somebody is continuously wetting. Because
11 when you're removing the surface of the gasket, you're
12 removing that water. It has to be continuously sprayed.

13 Q. Okay. Packing, when it's removed from valves and
14 from pumps is wet. Correct?

15 A. In some instances, depending on where it is in the
16 valve or where it is in the pump. Many instances on
17 steam lines it is not. But not all packing comes out dry
18 and not all packing comes out wet.

19 Q. But the packing that you removed in your studies
20 was dry; correct?

21 A. Yes, sir.

22 Q. Because they had been out of service for many
23 years; correct?

24 A. They've been out of service for many years, but
25 these came off steam lines. And typically, steam lines,

Cross - Longo

1 because of the heat and the nature, you don't see the
2 packing being wet a lot of the time, at least according
3 to the testimony of pipefitters and steamfitters.

4 Q. Well, look at what you disclosed with respect to
5 gasket fabrication. You and Mr. Frost talked about this
6 this morning; correct?

7 A. Yes, sir.

8 Q. And you displayed a table from -- that came from
9 your report where you displayed this gasket fabrication
10 data. Right?

11 A. That is correct.

12 Q. And you said -- I thought you said that you had
13 done used the same techniques that were used in the
14 studies in your table. But that's not correct; right?

15 A. No. I don't believe I said that. If I did, I
16 misspoke.

17 Q. Well, the record reflect what you said. I just
18 want to be clear. What you displayed in your table to
19 the Court for gasket fabrication was secondary
20 manufacturing activities; correct?

21 A. Correct. It was.

22 Q. These are all secondary manufacturing where people
23 are working in shops and they're punching out or cutting
24 out gaskets for a long period of time; correct?

25 A. Correct.

Cross - Longo

1 Q. You don't know of any current claimants that
2 engaged in secondary manufacturing; correct?

3 A. I don't know anything about any of the claimants.

4 Q. Right. And so the data that you said that is
5 similar to the data that you got from you and
6 Dr. Millette hammering out gaskets is all in a different
7 type of work activity than what you and Dr. Millette
8 studied. Correct?

9 A. These are all fabrication studies in which -- and
10 I think and I'm probably not explaining myself very well.
11 One of the issues here is, does these asbestos-containing
12 compressed sheet gaskets release fibers when they're
13 abraded or impacted. If they're going to release
14 asbestos fibers at these levels when they're abraded --
15 when they're impacted and punched, then I don't think
16 it's unreasonable to understand that when you grind the
17 gaskets off, when you abrade the gaskets off, which is
18 even more disturbance of the gasket from one that they
19 had been in place and become friable, you also get
20 results. You're also going to see higher level. So, a
21 lot of this data is supportive of the concept that when
22 you grind a wire brush and scrape off gaskets, asbestos-
23 containing compressed gaskets, you are going to get
24 elevated levels.

25 Q. We're going to talk about gaskets --

Cross - Longo

1 A. Taking brand new gaskets and punching them or
2 cutting them also produces elevated levels.

3 Q. Well, what you didn't indicate here is that when
4 the Navy was -- the results from the Bremerton study,
5 that you reported, came -- that was taken before the
6 study was done. During the study, housekeeping had been
7 employed. And just with a little housekeeping, those
8 numbers from the Navy came way down for secondary
9 manufacturing. Is that true?

10 A. That's absolutely true.

11 Q. And on Dow, as well, you've got the lower number
12 or lower range indicated .8, but you put in the .40. We
13 learned last week when we went through the study that the
14 areas had not been cleaned for several days in the Dow
15 study. And then once the areas were clean, the
16 subsequent samples were much lower. Do you recall that?

17 A. I recall that. I think that just shows when
18 you're using these asbestos-containing gaskets, it's not
19 only the actual cutting. But if you're not cleaning up
20 around it --

21 Q. I was just asking if you recall it, Dr. Longo.

22 A. I do recall it. Please let me explain, if that's
23 okay.

24 Q. That's not my question. You'll have plenty of
25 opportunity to explain when they're asking questions.

Cross - Longo

1 A. I think it's an important point that the
2 housekeeping does affect the fiber release levels because
3 of the disturbance, of the material disturbance of the
4 dust on the table, the disturbance of the pieces being
5 knocked around. It's an important point.

6 Q. Well what was interesting about this Table is that
7 you didn't put the peer reviewed published studies in the
8 table; correct?

9 A. That's correct.

10 Q. You didn't put Cheng and McDermott in there;
11 correct?

12 A. That's correct.

13 Q. And Cheng and McDermott has a whole section of
14 their report. At your deposition, you had forgotten --
15 you didn't remember that Cheng and McDermott had done
16 fabrication at the beginning of their study; correct?

17 A. No. What I stated was I had the Cheng and
18 McDermott entire paper attached to the report.

19 Q. Sure. But didn't -- when you're displaying the
20 results, and their results of secondary manufacturing of
21 gaskets where people are cutting off out gaskets all day
22 long, are much, much lower than what you were
23 representing in the table you put in your report. True?
24 Is that true or false? Is that true or false?

25 A. Yes. And -- it's apples --

Cross - Longo

1 Q. Is it true?

2 A. You can't answer that true or false because some
3 of their techniques -- they were using different cutting
4 techniques. And I've always stated when I've testified
5 that --

6 Q. They used the hammer punch, a power shear, wheel
7 cutter, a shear and hammer punch, a shear and scissors?

8 A. Yes, sir.

9 Q. And then they also took short-term samples using a
10 saber saw and power shear and a wheel cutter; is that
11 correct?

12 A. That's correct.

13 Q. And their long-term samples are below the eight
14 hour time-weighted average -- current eight hour
15 time-weighted for OSHA; correct?

16 A. That is correct.

17 Q. And their short-term samples are below the
18 short-term exposure limit. True?

19 A. That is correct.

20 Q. Let's talk about your Gasket Fabrication Study II
21 which is the one that relates to Garlock gaskets;
22 correct?

23 A. Yes, sir.

24 Q. You also did study I with John Crane; correct?

25 A. That's correct.

Cross - Longo

1 Q. With John Crane gasket material; right?

2 A. Yes, sir.

3 Q. And you hammered out four gaskets in a row in 22
4 minutes; correct?

5 A. Yes, sir.

6 Q. But the samples that you reported were for all
7 four gaskets; correct?

8 A. That is correct.

9 Q. You didn't take an individual sample of, what does
10 it take when someone's hammering out just one gasket when
11 they're in the field; correct?

12 A. That is correct.

13 Q. This is gasket material that had been provided to
14 you in a study that was paid for, at least in part, by a
15 plaintiff's lawyer from Virginia named Bobby Hatten.

16 A. Yes, sir.

17 Q. Is he in the courtroom today? I believe he is.
18 He's one of your clients; correct?

19 A. He is.

20 Q. You've worked closely with him over the years;
21 correct?

22 A. I've worked for him over the years. Yes, sir.

23 Q. So you hammered out four gaskets in 22 minutes and
24 got the results and sent the same flange and gasket
25 material over to Dr. Millette. You told him what you had

Cross - Longo

1 done, and he did the exact same thing. He hammered out
2 four gaskets in a row in 22 minutes; correct?

3 A. Yes, sir.

4 Q. When I deposed you about that, you had said that
5 this was not based upon any individual -- any experience
6 of any individual plaintiff or worker. Correct?

7 A. That's correct.

8 Q. And you said that you were trying not to simulate
9 someone's work activity, but you were trying to detect
10 fibers. Correct? And that's why you chose four gaskets
11 in a row in 22 minutes. Right?

12 A. That's one of the reasons for four gaskets is that
13 we wanted to be able to get a large enough sampling out
14 of the box so we could detect whether the fibers were
15 there or not.

16 Q. I asked you in the Costello case, how did you
17 decide to determine that you should fabricate four
18 gaskets like that, one right after another?

19 "I really based that a lot on Fred Boelter's
20 study. I think they fabricated one an hour and
21 found no results. So I wanted to say, okay. If
22 there is going to be any fiber release, I think a
23 reasonable number to even detect if it would be
24 four. Since he found no fibers, one an hour for
25 eight hours, I wanted to see if we can -- again,

Cross - Longo

1 we're just looking to see does it release fibers
2 or not."

3 A. Correct.

4 Q. "And I was looking primarily with 22 minutes or
5 doing four in a row that would that produce any
6 fine fibers and, if so, would it be enough to
7 detect. So that's how I came up with four, just
8 mainly trying to get a detection limit. That if
9 it released very little like Boelter's, could we
10 detect it or not."

11 That's what you said; true?

12 A. True.

13 Q. Let's shift gears from study design and look at
14 sample collection. You spoke about this on your direct
15 testimony this morning. This is from Gasket Study V
16 where they forgot to turn on the pumps. They're getting
17 ready to start a study and they don't remember to turn on
18 the personal pumps of the worker or helper?

19 A. For the first set of air samples, that's correct.

20 Q. That's what happened. And it's interesting that
21 you discussed this in your direct testimony. Before
22 Garlock filed for bankruptcy, I had a chance, or an
23 opportunity, to examine you in the Torres trial.

24 Correct?

25 A. Yes, sir.

Cross - Longo

1 Q. And I asked you -- I asked you while you were on
2 the stand that this is what happened. They didn't turn
3 the pumps on. And the first sample that was collected,
4 which turns out to be the highest up until that time, was
5 collected during a rest period.

6 And you said, "Absolutely, that did not happen."
7 Do you recall saying that?

8 A. That was my memory of it at that time. You have
9 to understand that during that trial, this was not one of
10 the studies we relied on. We've done hundreds of studies
11 and I didn't recall that happening at that time.

12 Q. Absolutely, that did not happen. And you said
13 that under oath. True?

14 A. Yes, sir.

15 Q. You were certain about that, just like you were
16 certain about the brass flange and the bronze flange and
17 now the carbon steel flange.

18 This is a picture. We've seen the video before.
19 This is a picture of what they were doing. Actually,
20 there were area samples that were turned on and running
21 at the time of the work activity; right?

22 A. That's correct.

23 Q. And you see if you watch the video -- I don't know
24 if you've had a chance to go back and look at it. But
25 for most of the rest period, they're standing over in the

Cross - Longo

1 corner on the other side of where the area samples are
2 set up around the workbench. Do you recall that?

3 A. They're moving around. Yes, sir.

4 Q. The area samples that were on during the work
5 activity are below seven fibers per cc; right?

6 A. I think they're in the five to seven range.

7 Q. Yeah. So they're in five to seven range. And
8 that was going on during the activity. They turned those
9 off. They've turned on the personal pumps, stand in the
10 corner, and they get 36 fibers per cc. I think you
11 admitted on direct you don't -- this is not something you
12 fully understand. Is that correct?

13 A. Yes, sir. We were trying to look at that. Where
14 the outtake is of the exhaust system is, I believe, where
15 they were in that vicinity. We haven't taken a lot of
16 these -- we haven't taken any rest period samples. We
17 verified that the filters themselves do have that loading
18 on them. So the samples were sent to an independent
19 laboratory. We verified what was on those samples. The
20 area samples were, again, sent to an independent
21 laboratory, but we haven't taken the sheer number.
22 There's only four samples ever between rest period, so we
23 don't quite understand what's going on with this.

24 Q. The methods that you -- I believe you said on
25 direct that you used was NIOSH 7400; is that correct?

Cross - Longo

1 A. Yes, sir.

2 Q. Now, in your reports and in your paper, you refer
3 to this as in general accordance with NIOSH 7400; is that
4 correct?

5 A. That's correct.

6 Q. Does that mean that you don't follow every step of
7 the method?

8 A. No, sir, it doesn't mean that. But there is --
9 because of the types of studies we're doing where we're
10 doing work practice simulations, we're not doing OSHA
11 compliance where we're out at a work site. We try to
12 tailor some of these protocols for what we're doing,
13 especially in these high fiber levels. When we say --
14 excuse me. When we say "within general accordance," what
15 I'm saying is we followed the protocol to what is
16 required to produce reliable results.

17 Q. Does that mean you're following the method or not?

18 A. We are following the method.

19 Q. Okay. Well, we'll get to that.

20 A. There are little things here and there that may be
21 slightly different than the method but does not impact
22 the results.

23 Q. So the minimum flow rates under NIOSH 7400 is 0.5
24 liters per minute; correct?

25 A. Correct.

Cross - Longo

1 Q. And we discussed in your deposition for Gasket
2 Study IV, there were a number that were below .5;
3 correct?

4 A. Well, .049, .048. You know, we are, what, two-
5 tenths of a thousandths off or tenth of a thousandth off.
6 These are the types of things that do not impact that
7 data whatsoever.

8 Q. Right. They're just not calibrated to the method,
9 though, exactly to the method.

10 A. Well the pumps are calibrated initially. And
11 because of the extreme high fiber level that we found
12 from studies II and III from removing these gaskets, we
13 had to take the pumps right to the brink of the lower
14 limit of the pumps. As you use these pumps during the
15 time, they will drift somewhat. So, that is the average.
16 But being off a tenth of a liter --

17 Q. So in your protocol, or in the report for Gasket
18 Study IV, you say that during the electric wire brushing
19 phase of the study, the air cassettes were changed every
20 15 minutes. The intention was because you were concerned
21 about overloading when the electric wire brushing was
22 going on. True?

23 A. That's true.

24 Q. And it turns out when we look at samples P-5-A and
25 P-5-B, it's clear those are part of the samples for the

Cross - Longo

1 electric wire brushing. Correct?

2 A. That's correct.

3 Q. When you're looking at the sampling time, they're
4 actually done for 30 minutes. Correct?

5 A. That's correct. But because of the fiber level,
6 that five to seven, there was no overloading.

7 Q. I'm not arguing. I'm just saying that you said
8 something in your report and it turned out not to be
9 true; correct?

10 A. There was a typo. Yes, sir.

11 Q. Okay. For Gasket Study III, electric wire
12 brushing, the report says that the area samples were
13 calibrated to a flow rate of 10 liters per minute for
14 both background and area samples collected during the
15 study; correct?

16 A. That is correct.

17 Q. You said the same thing in the actual published
18 paper that included Gasket Study III, electric wire
19 brushing; correct? You said the personal and area
20 sampling pumps were calibrated before and after the
21 completion of each study against a DryCal primary flow
22 meter to air flow rates of two and ten liters per minute,
23 respectively. So, two and ten minute -- "two and ten
24 liters per minute, respectively" refers to the personal
25 and area sampling pumps?

Cross - Longo

1 A. Correct.

2 Q. Again, you're saying the area sampling pumps were
3 calibrated to ten liters per minute; correct?

4 A. That is correct.

5 Q. And in fact, the sampling logs show they were
6 collected at only five liters per minutes.

7 A. Well, for that one study.

8 Q. Okay.

9 A. The other studies were ten liters per minute.

10 Q. So the report you issued, and I think it's still
11 the current version of the report, and the published
12 paper were just wrong on that part; correct?

13 A. The air sampling was lower. But all the data
14 associated with the difference between ten liters per
15 minute and five liters per minute were all calculated
16 accordingly. So it didn't affect the data.

17 Q. But my point is that the report and the statements
18 in the published paper are wrong; correct?

19 A. It's a typo. Yes, sir.

20 Q. Let's move on to sample analysis.

21 A. Yes, sir.

22 Q. Now, for the studies that had been done up until
23 Gasket Study III, electric wire brushing. So that's
24 going to be the glued gasket studies, the Hawaiian
25 flanges from study I, study II and the two parts of study

Cross - Longo

1 III which were published. Those -- for those sample
2 analysis, your lab did those. Correct?

3 A. Yes, sir.

4 Q. When your lab did those analysis -- we saw all
5 those the accreditations that you were talking about this
6 morning. When your lab did those analysis, for the
7 published papers and before, the laboratory was not AIHA
8 accredited for doing those types of analysis; correct?

9 A. That's correct, we were not AIAH accredited. But
10 we did participate in the proficiency analytical
11 panoramics.

12 Q. We spoke briefly about this before. You said in
13 your published paper that the samples were collected and
14 analyzed in general accordance with NIOSH 7400. In fact,
15 though, NIOSH 7400 has a requirement that blind recounts
16 be done by the laboratory on ten percent of the filters.
17 True?

18 A. That's true.

19 Q. And at the time that you submitted your paper for
20 publication, the blind recounts had not been performed;
21 correct?

22 A. They had not been completed. At the time the
23 paper had been published, it had been completed.

24 Q. Right. I just want to clarify one thing that came
25 up earlier before I forget. You, actually -- at the

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1 Lamar County hearing, you testified that the paper, your
2 published paper -- well, what was going to be a published
3 paper, had been accepted for publication. Correct? You
4 said it had been peer reviewed but not published.

5 A. That's correct.

6 Q. Okay. So at the time of the Lamar County hearing
7 -- I think there may have been some implication that the
8 Lamar County judge did not know that your paper was going
9 to be published. And in fact, you were testifying about
10 it at the Lamar County hearing and that it was going to
11 be in fact published in a peer reviewed journal.

12 A. No, sir. I never said the judge didn't know that
13 it was --

14 Q. Okay. I just want to make sure.

15 A. No. I never said the judge didn't know there was
16 publication. I was trying to understand how a paper that
17 was published in a peer review journal, one of the better
18 ones, in one hand, and then a judge say that that study
19 was junk science.

20 Q. Well, we may find out about that. We know that
21 the paper at that time, at the time you submitted it,
22 blind recounts had not been done. Correct?

23 A. At the time we submitted it. At the time it was
24 published.

25 Q. And the reason why -- and Mr. Hatfield testified

Cross - Longo

1 to this. The reason why the blind recounts had been done
2 was because MAS did not regularly do PCM analysis for
3 clients; correct?

4 A. That's correct.

5 Q. And so it just wasn't part of the quality control
6 procedures that were set up in your lab; correct?

7 A. At that particular time, that's correct.

8 Q. All right. And we also know that because of the
9 fiber density of the filters, the majority of the worker
10 samples in study II should have been reported as probably
11 biased or uncountable under the method. True?

12 A. It has to be done if you're doing a NIOSH study.
13 The sheer amount of asbestos fibers did have higher than
14 1,300 millimeter square, but that bias is to a negative
15 number. So the actual samples that are reported to the
16 journal are actually going to be at a more conservative
17 number. There was nothing to report.

18 Q. Well under the method, you are to report samples
19 that were loaded like that as being probably biased or
20 uncountable, and that was not disclosed to the editor or
21 the peer reviewers. True?

22 A. That's not true.

23 Q. It was you disclosed to the peer reviewer that the
24 majority of the samples for study II should have been
25 reported under NIOSH 7400 as probably biased or

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1 uncountable?

2 A. No. It was disclosed to the editor before the
3 paper was published by your experts that all these things
4 --

5 Q. After it had already been accepted for
6 publication; correct?

7 A. It's already been accepted for publication. The
8 editor always has the final word as to either publish or
9 pull a paper. He saw all these criticisms and he did not
10 pull the paper.

11 Q. Dr. Longo, I want to talk to you about background
12 samples that are in the published paper. To do that, we
13 need to understand the papers, the studies that underlie
14 the published paper, and the numbers are a little
15 different. Study II in your paper is study -- study II,
16 the Work Practice Study II that you did, is study I in
17 the paper. Correct?

18 A. Yes, sir.

19 Q. And then studies II and III in the paper are the
20 two parts of Work Practice Study III. Correct?

21 A. Correct.

22 Q. The first part is scraping and hand wire brushing;
23 the second part is electric wire brushing. Correct?

24 A. Yes, sir.

25 Q. And those are studies II and III in the paper;

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1 right?

2 A. That is correct.

3 Q. Okay. So when the studies were originally done,
4 the background level for study III, electric wire
5 brushing, was reported in the range of .11 -- .09 to .11
6 fibers or 12 fibers per cc; correct?

7 A. That is correct.

8 Q. With an average background level of .11 fibers per
9 cc.

10 A. Correct.

11 Q. And then for study II in the paper, which is a
12 study III, scraping and hand wire brushing: Zero
13 background; right?

14 A. Right.

15 Q. So there's the appearance of contamination in
16 study -- in this third study; correct?

17 A. No. It's not.

18 Q. Well there's an appearance of some other fibers or
19 some fibers that are not related to the gaskets in the
20 chamber before the study began.

21 A. No, that is correct.

22 Q. All right. And this is how they're -- they appear
23 in the published paper. Correct?

24 A. Correct.

25 Q. Now, ultimately, you're -- these numbers need to

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1 be switched; correct?

2 A. That's correct.

3 Q. So Mr. Boelter -- you had written a letter
4 criticizing Mr. Boelter's paper, and then Mr. Boelter
5 wrote back to the editor. Correct?

6 A. Correct.

7 Q. And in his paper, he criticized your paper -- in
8 his letter to the reply letter, he criticized your paper.
9 Correct?

10 A. Correct.

11 Q. We asked you this at your deposition. Do you
12 remember whether you then asked the editor to withdraw
13 your original letter?

14 A. No, sir, I don't recall.

15 Q. You don't recall one way or the other? I said, "I
16 think you said at your deposition that you may have."

17 A. No, sir. I don't remember that long ago. I know
18 that when I saw that, it was not applicable to criticize
19 my paper in a completely different journal. Boelter
20 should have sent that criticism directly to the journal
21 my paper was in.

22 Q. One of the criticisms you had with Boelter's paper
23 was he didn't cite your paper. So he was just explaining
24 because you didn't cite his paper in your paper; right?

25 A. I'd have to look at it.

Cross - Longo

1 Q. Okay. After you received this criticism -- and
2 one of the criticisms was the chamber was contaminated
3 before the studies started; right? That was the
4 criticism.

5 A. Correct.

6 Q. That prompted you to go back. And then you looked
7 at the -- I guess you looked at the underlying sample
8 sheets and realized that eight samples in the study were
9 mislabeled and misidentified; is that right?

10 A. Yes, sir. The PCM analyst went back and looked at
11 that and changed that.

12 Q. He changed the data sheets after the paper had
13 been published; correct?

14 A. Yes, sir.

15 Q. After it had gone through the peer review paper.
16 Now we're switching the background and what was -- how in
17 the world would your lab miss -- well, I won't ask that.
18 But in fact, your lab somehow misidentified eight samples
19 that were collected as part of those study studies.
20 True?

21 A. True. Mr. Egeland got pieces of the PCM filter.
22 The way our laboratory works is it goes to the sample --
23 the sample technician who prepares the samples. She
24 removes a wedge from that filter, puts it in a Petri dish
25 and sends it to Mr. Egeland. Mr. Egeland misidentified

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1 that area and --

2 Q. Eight Samples he misidentified; right?

3 A. Well, he switched the four background samples.

4 Q. Four backgrounds from two studies. So that's
5 eight samples that somehow got misidentified; correct?

6 A. Correct.

7 Q. So he goes back to the data sheets and he crosses
8 out the names of the samples and the sample numbers and
9 then writes the real ones. What's interesting here is
10 that there's no date. When a microscopist goes back and
11 changes original data sheets, isn't it possible for the
12 microscopist to date the change?

13 A. Yes. Sitting here today, I would say he should
14 have.

15 Q. There's no data in your report about switching the
16 background samples afterwards, is there?

17 A. No, sir. These are the background samples.
18 Because of the fiber levels associated with it, the
19 background levels have very little effect on the amount
20 of asbestos levels that release from these gaskets.

21 Q. But you revised these studies, I believe, in 2010
22 and 2011. These are ten years after the study have been
23 done; you've issued revisions to the studies. And you
24 don't -- there's no note in the report that the
25 background samples were switched; correct?

Cross - Longo

1 A. Other than the -- showed right here in the data
2 sheets in the report.

3 Q. Well, the data sheets are stuffed in the back.
4 But in the beginning, there's a report that describes
5 what went on and what was done. Correct?

6 A. Correct. There's a protocol in there, and there
7 are tables. Those were changed.

8 Q. All right. So, there's eight -- they were changed
9 without any note of the change; correct?

10 A. The notes are right there.

11 Q. And so the -- there's eight of these sample
12 sheets. So now you've switched them; correct?

13 A. Correct.

14 Q. Why did it matter to you whether they were
15 switched or not?

16 A. Because I thought it was appropriate to have them
17 under the proper sampling.

18 Q. Is that the only reason?

19 A. Yes, sir.

20 Q. In your report in this case you excerpt tables
21 that include this information about them.

22 A. Correct.

23 Q. And you've now put the .09 to 0.12 with scraping
24 and hand wire brushing, and the background for electric
25 wire brushing is less than the limited detection;

Cross - Longo

1 correct?

2 A. Correct.

3 Q. What's interesting is you did not switch the TEM
4 samples; correct?

5 A. That's correct.

6 Q. The TEM samples are taken from the exact same
7 filter; right?

8 A. That's correct.

9 Q. And so a quarter of the filter is used for the
10 Phase Contrast Microscopy analysis, and then about half
11 the filter is used for the Transmission Electron
12 Microscopy.

13 A. Correct.

14 Q. Okay.

15 A. But there is a difference there. The quarter of
16 the filter that was cut out for the Phase Contrast
17 Microscopy was put in a separate container and sent to
18 Mr. Egeland.

19 Q. So, what we know --

20 A. Hold on. The TEM analysis goes to the lab manager
21 -- not the lab manager, the sample preparation manager.
22 Those samples were correct.

23 Q. So what we have here on the left is the electric
24 wire brushing, and there's Phase Contrast Microscopy
25 reports, PCM, and there's detectable levels or report

Cross - Longo

1 levels of fibers in those samples. And right next to it
2 is the Transmission Electron Microscopy analysis, and it
3 detects asbestos fibers there too. Those are consistent
4 with finding fibers in the Phase Contrast Microscopy
5 analysis. True?

6 A. No, not true.

7 Q. Okay.

8 A. Hold on. Let me just --

9 Q. I just asked you if you thought it was true or
10 not.

11 A. I'm sorry.

12 Q. Over on the right-hand side we have Phase Contrast
13 Microscopy results that are zero. Should be less than
14 limit of detection, not zero. Correct?

15 A. That's correct.

16 Q. And the TEM numbers are less than the limit of
17 detection. You've reported them as zero, but they should
18 be less than the limit of detection. Right?

19 A. Right.

20 Q. That's how scientists report finding nothing is
21 "less than a limit of detection;" right?

22 A. That's correct.

23 Q. Okay. And so now you've switched these samples.
24 So, in your report in this case, you say the background's
25 air samples in this study showed an elevated fiber level

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1 0.09 to 0.12 fibers per cc as compared to what is
2 typically found in our ECL which is usually below the
3 analytical detection limit before Work Practice Study is
4 done. Since the NIOSH 7400 PCM method cannot distinguish
5 between asbestos and non-asbestos fibers, these four air
6 samples were also analyzed by both TEM indirect analysis
7 and NIOSH 7402 TEM method to determine if the fibers were
8 counted -- if the fibers counted were asbestos or not. A
9 comparison of the results for the different analytical
10 techniques used to analyze the background samples are
11 shown in table six. The elevated PCM background air
12 samples were found to be all non-asbestos as shown in
13 table six. An additional 29 air samples, etcetera.

14 So now you can report that that elevated
15 background sample that indicated that the chamber was
16 contaminated, when looked at by indirect TEM, that it's
17 less than a limited detection. True?

18 A. Those -- that's true. Those are the samples.

19 Q. So, this is our time line. As far as we know, the
20 first time that you've ever produced these revised
21 studies to Garlock was in connection with your report in
22 this case. You believe it may have been produced earlier
23 in the preceding ten years or so?

24 A. Yes, sir.

25 Q. You've also found in other studies elevated

Cross - Longo

1 background levels; is that correct? This is a chart from
2 your Crane Valve study.

3 A. Correct.

4 Q. You report 0.012 fibers to cc to 0.02, and you
5 estimate that zero to 11 percent of those fibers actually
6 were asbestos. Correct?

7 A. That's correct. You have to understand. Between
8 these studies, between studies II and III, electric hand
9 wire brushing and electric -- excuse me, hand wire
10 brushing and electric wire brushing, the ECL was not
11 decontaminated. Between a few of these studies, the ECL
12 is not contaminated.

13 Q. This is Crane Valve. This isn't the one you were
14 just talking about.

15 A. Well, I know.

16 Q. If we go back to what you were just saying before.
17 Electric wire brushing was done after the -- after
18 studying the scraping and hand wire brushing study;
19 correct?

20 A. That's correct.

21 Q. But you're saying now that the background levels
22 that are elevated belong over in gasket study scraping
23 hand wire brushing.

24 A. The elevated PCM levels were taken before the
25 scraping and hand wire brushing. The chamber between

1602

Cross - Longo

1 Gasket Study II and Gasket Study III in those studies was
2 not decontaminated, so there was expected to be some
3 residual asbestos. In the Crane studies the same thing
4 happens, because we wanted to do a cleanup after these
5 set of -- after this set of valves. So you can't
6 decontaminate the chamber each time. That's why we take
7 the background samples.

8 Q. This switch in the background samples was never
9 reported to the editor of the journal; correct?

10 A. No, sir. It made little difference to the overall
11 validity of the study. The background samples for one
12 versus the other, the actual sample analysis of --

13 Q. My question was just whether you ever reported it.

14 A. No, sir. There wasn't any -- there wasn't any
15 need to.

16 Q. Okay. So I want to ask you. There's another
17 protocol or another method that you followed called NIOSH
18 7402; is that correct?

19 A. That's correct.

20 Q. NIOSH 7402 looks at part of the filter to
21 determine the percentage of asbestos that's asbestos
22 fibers versus other fibers; correct?

23 A. Yes, sir.

24 Q. And then you take that percentage and multiply it
25 by your PCM results to know what the percentage of the

Cross - Longo

1 asbestos fiber content is; correct?

2 A. That's correct.

3 Q. All right. And there's a methodology to it. It's
4 a published method by NIOSH. Correct?

5 A. That's correct.

6 Q. And you said you used that method on direct;
7 correct?

8 A. We did.

9 Q. So we looked through your data sheets. We talked
10 to you about this at your deposition. The magnification
11 that's specified by NIOSH 7402 method is 1,000 -- 500 to
12 1,000 is where the counting is supposed to be done;
13 correct?

14 A. Correct.

15 Q. And your data sheets for the scraping Gasket Study
16 III, study IV and study V all say that the screen
17 magnification was 20,000 power; correct?

18 A. That's correct.

19 Q. The indication is that your microscopist used a
20 much higher magnification than what the method calls for;
21 correct?

22 A. The data sheet would suggest that. That's not
23 what happened.

24 Q. Right. You've talked to the microscopists, and
25 there's actually at least three microscopists who did

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1 this wrong. Correct?

2 A. That's correct.

3 Q. You've talked to them and you've said -- they told
4 you no, that's not right. We did it at the right
5 magnification. Correct?

6 A. That's correct.

7 Q. But you didn't change the data sheet; is that
8 true?

9 A. That's true. It's already there. I wasn't there
10 and personally saw them in some of these looking at that
11 concentration.

12 Q. Do you not trust them?

13 A. I do trust them.

14 Q. Okay.

15 A. But since it's already on there --

16 Q. You haven't gone back like you've done before to
17 correct the data sheets like was done in the earlier
18 studies; correct?

19 A. That's actually when the samples themselves were
20 switched. The 20 to 25,000 does not make any difference
21 in the analysis, even though it was that high. But
22 analyst -- you have to understand electron microscopy
23 analysts, because they wouldn't do that because of the
24 sheer time it takes.

25 Q. The analyst at least reported inaccurate

Cross - Longo

1 information; correct?

2 A. On the screen magnification. That's correct.

3 Q. We're just showing a sample of one. But this is
4 all the NIOSH 7402 analysis in study III, scraping and
5 hand wire brushing, study IV and study V. Correct?

6 A. Yes, that's correct.

7 Q. And was it also an error in the Crane Valve Study
8 as well?

9 A. Yes, sir. I think so.

10 Q. NIOSH 7402 also specifies that there will be three
11 grid preparations; correct?

12 A. Correct.

13 Q. Transmission Electron Microscopy? Is that right?

14 A. Yes, sir.

15 Q. And on a number of the samples for Gasket Studies
16 III, IV and V, you had only done -- your microscopist had
17 the only done two; is that correct?

18 A. That's correct.

19 Q. In this situation they actually did not follow the
20 method at the time they did the analysis; correct?

21 A. No, sir, they didn't. Most TEM analysis, except
22 for this one, uses two grids. The use of the 7402 method
23 using two grids has been published and peer reviewed. In
24 order to follow that protocol to the T, three grids
25 should be used, but it has no bearing on the actual

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1 results of the analysis.

2 Q. Okay. That's your opinion; correct?

3 A. No, sir. We went back and took blind samples and
4 re-analyzed them using three grids and half fibers versus
5 two grids. We did this for study IV. We did this for
6 the Crane study so that we had that data. And when you
7 look at the percentage of asbestos saying in the Crane Co
8 where ten percent of the samples were re-analyzed using
9 the three grid versus the two grid, the difference in
10 percentage between the two grid and three grid was a
11 tenth of a percent.

12 Q. Well, you brought up another point in your answer
13 when you said that you didn't follow the counting rules.
14 There are actually counting rules that microscopists are
15 supposed to follow; correct?

16 A. Yes, sir.

17 Q. And if a fiber that they're counting crosses the
18 exterior of the field where they're supposed to be
19 looking, it's counted as a half fiber?

20 A. Yes, sir.

21 Q. And your lab wasn't following that rule; correct?

22 A. No, sir. They were counting full fibers, not half
23 fibers. The full fiber had to be at least five
24 micrometers in length on the grid size.

25 Q. They were not following the counting rule; is that

Cross - Longo

1 true?

2 A. They did not use the half fiber. But, again, all
3 these issues --

4 Q. I know. They don't make a difference; right?

5 A. It does not go to the validity because of our
6 analysis and used by others in peer review publications.

7 Q. They don't make a difference. That's what you're
8 saying; right?

9 A. No, sir, they don't.

10 Q. Even though, technically, they're not following
11 the method; right?

12 A. Technically, they should have counted the half
13 fibers. They should have counted the three grids. But
14 is the validity of the data sound? Yes, it is.

15 Q. Now also as part of this Transmission Electron
16 Microscopy, the fiber types were identified. Right?

17 A. Yes, sir.

18 Q. The fiber types of what was found, and we went
19 through a number of these at your deposition where your
20 microscopist -- and let's be clear. I think what you
21 told us was that you have not done any of the microscopy
22 for any of the studies that you've talked about.

23 Correct?

24 A. That's correct.

25 Q. You haven't gone back and verified the microscopy

1608

Cross - Longo

1 for any of the studies that we're talking about; correct?

2 A. I have not sat down in a full count. I think as
3 we talked at the deposition, I have gone in and looked at
4 particular fibers and questions. But no, sir, I haven't
5 done an entire count.

6 Q. Right. So this microscopy is -- you're relying on
7 the microscopist to do this work; correct?

8 A. Correct.

9 Q. And to report it accurately; correct?

10 A. Correct.

11 Q. And you're not doing the quality control yourself;
12 correct?

13 A. That is correct.

14 Q. All right. So we see that there were fibers that
15 were identified as Crocidolite that should have been
16 labeled Chrysotile; correct?

17 A. Correct. The underlying data showed Chrysotile.
18 The pull down menu that the analyst had Crocidolite in
19 it. I think there was a half dozen of these that you
20 showed, that you pulled out at the deposition.

21 Q. And what this is -- as we're talking about it,
22 this is the actual conclusion of the microscopist of what
23 the fiber type is; correct?

24 A. No. The microscopist, where he has done the
25 analysis off to the left-hand side of that is where he

Cross - Longo

1 has identified it as Chrysotile. By morphology, he's
2 identified it with Chrysotile as SAED or Selected Area
3 Electron Diffraction. In some places energy disburses
4 spectroscopy. When he went down to the pull down menu,
5 he made an error. It's not his opinion it's Chrysotile.

6 Q. So he made an error in the identification. That
7 column is supposed to indicate what the identification of
8 the fiber type is; correct?

9 A. That's correct. But the entire column shows the
10 data --

11 Q. So he identified Chrysotile as Crocidolite?

12 A. That's correct.

13 Q. That happened again. He identified Chrysotile as
14 Crocidolite; correct?

15 A. Correct.

16 Q. He identified Amosite when it was actually
17 Chrysotile; correct?

18 A. Correct.

19 Q. He identified Actinolite, which is another
20 amphibole which he identified two Actinolite fibers when
21 in fact they were Chrysotile fibers; correct?

22 A. Correct.

23 Q. Again, in another analysis, he identified
24 Actinolite when it was actually Chrysotile.

25 A. Correct.

Cross - Longo

1 Q. And then it's interesting. So we went through
2 those at your deposition. And then there was one that,
3 or at least one that we did not go through at your
4 deposition. After your deposition, you provided updated
5 studies to us. Correct?

6 A. Correct.

7 Q. And the one of these that didn't get corrected was
8 the one we didn't have time to get to in your deposition.
9 It says Chrysotile, Chrysotile. He labeled it as
10 Actinolite. And it's still labeled as Actinolite. But
11 under your analysis that should be Chrysotile; correct?

12 A. Yes, sir, it should be all Chrysotile. You have
13 to understand that the 7402 analysis between all the
14 studies, studies III, IV and V, not even counting the
15 Crane Co studies that was 8,100 individual analysis of
16 fibers. Out of that 8,100, we have about a half a dozen.
17 If you look at the error rate on that, it's two percent.
18 That does not affect the integrity of the data.

19 Q. Okay. It's tough -- I know it's tough. It's
20 laboratory work. It's tough work, I'm sure.

21 Dr. Longo, this is the advertisement for your
22 laboratory; right?

23 A. Yes, that's correct.

24 Q. "Do you really trust your lab results?"

25 Let's talk about data reporting. In your report

Cross - Longo

1 in this case you wrote to the Court, for insulating
2 cements, the asbestos concentrations was between --
3 typically between -- Ii guess there's a typo there.
4 Between typically between four to 90 percent, depending
5 on the manufacturer, and the asbestos was always
6 Chrysotile.

7 A. Yes, sir.

8 Q. That's what you wrote; correct?

9 A. Correct.

10 Q. Always Chrysotile in asbestos cements. That's
11 what you wrote; correct?

12 A. That's what I wrote.

13 Q. That is not true, is it?

14 A. No, sir. I wasn't aware of a couple of the
15 manufacturers. I was basing that on the manufacturers I
16 was familiar with and the tens of thousands of insulating
17 cement samples that our laboratory has analyzed. We have
18 never seen an Amosite insulating cement come through our
19 lab.

20 Q. We went through the answers to interrogatories of
21 Johns-Manville?

22 A. Correct.

23 Q. Major producer of asbestos products. And UNARCO,
24 another major producer of asbestos products. Correct?

25 A. Yes, sir.

Cross - Longo

1 Q. We just went through two companies, manufacturers,
2 specifications for asbestos cement. They identified
3 making Chrysotile cement, Amosite cement, a blend of
4 Amosite and Chrysotile, and a Crocidolite cement.
5 Correct?

6 A. I don't recall the Crocidolite cement.

7 Q. Okay. But there's no question in your mind now
8 that amphiboles were used in asbestos cements. Correct?

9 A. No, sir, there's still a question. I understand
10 it's in their interrogatories. I would have thought our
11 laboratory, in tens of thousands of insulating cement
12 studies that we would have seen at least one Amosite
13 insulating cement.

14 Q. You never corrected your report; correct?

15 A. No, sir.

16 Q. I want to talk to you about the detection of
17 amphiboles in Chrysotile sheet gaskets that you spoke
18 about this morning. You displayed this table; correct?

19 A. Yes, sir.

20 Q. And here in this analysis you reported finding, in
21 this second sample there, Tremolite and Anthophyllite,
22 but that was a mistake. Correct?

23 A. Yes, sir, as I discussed this morning.

24 Q. That was an error. This is actually a study that
25 you had done back in 2002; correct?

Cross - Longo

1 A. Part of that analysis. We did an additional
2 analysis as to quantify for the .016 percent, and that's
3 based on just a Tremolite. The Anthophyllite really had
4 no bearing on the actual weight percent. It was not
5 included in the calculations. It was on an old table
6 from data that -- where the Anthophyllite was not found.

7 Q. The percentages you've described before as being
8 "ultra trace;" correct?

9 A. Correct.

10 Q. That's the concentration of amphiboles in
11 Chrysotile sheet gaskets that you would describe as ultra
12 trace; correct?

13 A. Correct.

14 Q. You described concentrations of respirable
15 asbestos fibers in micrograms this morning; is that
16 correct?

17 A. Just Chrysotile in general in micrograms.

18 Q. And you're relying upon some work that Dr.
19 Chatfield did?

20 A. Correct.

21 Q. And Dr. Chatfield was studying Calidria; correct?

22 A. Yes.

23 Q. That's a special kind of Chrysotile or unique kind
24 of Chrysotile; correct?

25 A. Sort of. When it's in the product, you can't tell

Cross - Longo

1 the difference of it. When you look at it by
2 Transmission Electron Microscopy out of the raw, it's
3 very large -- large bundles of Chrysotile; very few
4 single fibers.

5 Q. Typically, the fibers are shorter than in other --
6 than in other Chrysotiles?

7 A. No, sir. We have looked at the size distribution
8 of Calidria structures, and it has about the same size
9 distribution that Canadian Chrysotile has.

10 Q. Did Garlock make any products with Calidria, to
11 your knowledge?

12 A. No, sir.

13 Q. This second Crocidolite fiber that you discussed
14 earlier this morning was not disclosed in the original
15 report back in 2002; correct?

16 A. No, sir.

17 Q. This was discovered in an analysis, a re-analysis
18 that was done after you were hired by the Committee in
19 this case; correct?

20 A. That's correct.

21 Q. And this sample?

22 A. Excuse me. It wasn't discovered. We took another
23 sample off that gasket and ran through the complete
24 analysis. And where the first time it was not a complete
25 Addison Davies, it was just a digestion, here we counted

Cross - Longo

1 a number of fibers and this was found.

2 Q. The original sample number. That same sample
3 number back in 2002 had been sent out to another lab to
4 do quality control, quality assurance check. Correct?

5 A. Correct, from the first analysis.

6 Q. From the first analysis. And when analyzing that
7 sample, that lab only reported finding Tremolite.
8 Correct?

9 A. As we did.

10 Q. I want to turn to some reporting that you have
11 done by looking at your data sheets and comparing them to
12 the actual report for the study that was done. Here are
13 data sheets that relate to Gasket Study IV and the
14 results. This is on the 7402 analysis, I believe.

15 A. That's correct.

16 Q. And in the 7402 analysis, you determined that the
17 percentage of asbestos was 87.93 percent, and then in the
18 report you described it as being 90 percent. True?

19 A. That's true.

20 Q. That's an error.

21 A. Yes, sir.

22 Q. In another instance it was 94 percent in the data
23 sheet. And then when you were reporting it, in the
24 report it was reported as 95 percent. Correct?

25 A. That's correct.

Cross - Longo

1 Q. Another error.

2 A. Yes, sir, another typo.

3 Q. We went through at your deposition and we
4 identified a whole number of these where numbers were
5 reported in the data sheets as one thing and then in the
6 report part they're reported as something else. Sample
7 A-6-B of study IV. The data sheet said it was less than
8 the limit of detection. You reported it in your report
9 as 1.2 fibers per cc. Correct?

10 A. I'm sorry. Which one is that?

11 Q. I'm down here at A-6-B.

12 A. Oh.

13 Q. Right there. And then in your updated version
14 it's less than the limit of detection. Correct? You
15 corrected it in the updated version of the report; right?

16 A. Yes, sir.

17 Q. So there's a number of these errors that appear in
18 your data sheet. Is there quality control from
19 extracting the data from the data sheets to the reports
20 that you produced in litigation and, particularly, the
21 report in this case?

22 A. Yes, sir. But are you saying that all of those
23 are errors or just those three?

24 Q. I think those three are the ones that you
25 corrected in your updated version of the studies that

Cross - Longo

1 we've highlighted. This is a chart that comes from our
2 *Daubert* brief. Have you seen our *Daubert* brief?

3 A. I have not. Many of those samples are not
4 incorrect. I'm just --

5 Q. Tell me which ones are not correct. Tell me which
6 ones are not correct.

7 A. Well, we start at the bottom. 3.849. When you
8 round that, it's 3.9. 22.549, when you round, it is
9 22.6. I think we just talked about 94 and 95. 98.0, 99,
10 I'll agree with that. 96.2 to 97, a hundred -- 1.445,
11 when rounded, is 1.5.

12 Q. I'm sorry. Which one, when rounded, is 1.5?
13 Let's take that 1.445.

14 A. Correct.

15 Q. And it's your understanding as a scientist that
16 when you round 1.445 to one decimal point or one digit to
17 the right of the decimal point that you go back two
18 places and then you round that number up or down and then
19 round the result. So you round the five to make the four
20 to the left of it a five. And then you round that up so
21 that it becomes 1.5; correct?

22 A. That's absolutely how you do it. If that had been
23 1.44, then you would have rounded to 1.4.

24 Q. Dr. Longo, I think you're absolutely wrong.
25 That's not how you round numbers. But I understand

Cross - Longo

1 that's your contention, but I think this is third grade
2 math.

3 A. Two significant figures. Yes, it is.

4 Q. No, that's not how it's done. We don't have to
5 get into that right now.

6 A. Okay.

7 Q. All right. Dr. Longo, let's go back to the
8 published paper for a second. Plaintiff's lawyers, as we
9 discussed, including Baron & Budd, contributed to pay for
10 the cost of your studies that were published. Correct?

11 A. They paid for the purchase of the flanges.

12 Q. Supplying the materials?

13 A. They didn't pay for any of the time, any of the
14 analysis.

15 Q. And then after you did the studies, you would use
16 those studies and testify. And then, in addition to your
17 hourly rates that you charged, you would charge a
18 reimbursement fee to law firms that used these studies,
19 correct?

20 A. Yes, sir.

21 Q. None of the financing of this, whether the
22 contribution by Baron & Budd and the other plaintiffs'
23 lawyers or the reimbursement fees that you were
24 collecting from using these studies as you testified for
25 plaintiff's firms across the country, was disclosed or

Cross - Longo

1 mentioned in the article. Correct?

2 A. No, sir. I disclosed it to the editor, and it was
3 up to the editor to decide to put it in or not. It was
4 not up to me. I can't put anything into the final
5 article. It has to be the editor.

6 Q. And one of the reasons for doing the subsequent
7 studies affidavit after the studies that were actually
8 published was to fix the quality control problems that
9 you had with the studies that were actually published.
10 True?

11 A. That is not true.

12 Q. We asked Mr. Hatfield, your colleague, that
13 question.

14 "Do you have plans to do a Work Practice Study
15 four involving gaskets?"

16 Answer: "Yes."

17 "Is this to fix the quality control problems with
18 your counts?"

19 "It's for a number of reasons."

20 "Is that one of the reasons?"

21 "That is one of the reasons," is what he said.

22 A. That's what Mr. Hatfield --

23 Q. Dr. Longo, you've talked about doing work for
24 companies in the context of litigation; is that correct?

25 A. Yes, sir.

Cross - Longo

1 Q. There are a number of companies that pay you a
2 monthly fee for engaging you as a consultant, and then
3 you don't testify in cases in which they're defendants.
4 Is that true?

5 A. That's true.

6 Q. Some of those defendants are defendants that are
7 being sued for gaskets and packing, is that true, such as
8 Ingersoll Rand?

9 A. I know they're compressors, but I do expert
10 consulting for them. And you know, Mr. Harris, I take
11 that as the highest complement that companies where I
12 would have opinions want me to help them with their
13 issues.

14 Q. It's been -- these fees that you receive, these
15 monthly consulting fees that they've paid you, are quite
16 substantial. Ingersoll Rand, was it \$300,000 a year?

17 A. No.

18 Q. \$200,000 a year?

19 A. Lower.

20 Q. \$150,000 a year?

21 A. Lower.

22 Q. Okay. Have you testified to it being higher?

23 A. No. It's approximately \$50,000 a year.

24 Q. What about General Electric? Westinghouse?

25 A. Westinghouse is about \$100,000 a year.

Cross - Longo

1 Q. Okay. Just one second, Dr. Longo. I believe I
2 may be completed.

3 A. Yes, sir.

4 Q. Dr. Longo, since your original gasket paper was
5 published you have not published any papers with respect
6 to gaskets and packing in the peer reviewed literature;
7 is that true?

8 A. That's true.

9 Q. You testified about the Lamar County order. Your
10 testimony has been limited and excluded in other cases at
11 times; is that correct?

12 A. I'm aware of one other case where the -- where
13 they said that we had to absolutely duplicate the work --
14 the work environment. And I didn't know that was the
15 standard and I agreed with the judge. I don't recall,
16 other than Lamar County, ever being limited to what I
17 could testify about gaskets.

18 Q. Aren't your Tyndall Lighting videos excluded all
19 the time? There's a standing order in San Francisco,
20 isn't it?

21 A. I don't know if that's true or not. I'd say about
22 five to ten percent of the time the Tyndall Lighting has
23 been excluded but not my testimony about what we do, our
24 results and analysis of gaskets.

25 Q. Thank you, Dr. Longo.

Redirect - Longo

1 A. Thank you, Mr. Harris.

2 **REDIRECT EXAMINATION**

3 BY MR. FROST:

4 Q. Briefly, Dr. Longo. You were asked some questions
5 about the beginning about the 11,000 RPM grinder and
6 whether they would have had that in the 1950s or '60s.
7 Has your lab looked at this issue of whether it's 11,000
8 RPM grinder versus, I don't know, a 3,000 RPM grinder or
9 anything else?

10 A. Yes. We actually looked at using a 4,500 RPM
11 pneumatic grinder and a 3,500 RPM electric grinder to see
12 if there was any difference in the fiber levels between
13 using an 11,000 RPM grinder, or see if it was more
14 consistent with our 1,350 RPM grinder that had the same
15 results as the 11,000 RPM grinder. We absolutely -- we
16 looked at that.

17 Q. And I think there was some questions about
18 pneumatic tools. Have you looked at -- I mean, pneumatic
19 tools are basically what I used to use on the farm.
20 They're air supplied.

21 A. Air Drills.

22 Q. Air Drills or air whatever. Have you looked at
23 the difference between something that's supplied by air
24 versus electric?

25 A. Yes, sir, we have looked at the pneumatic grinder

Redirect - Longo

1 versus our grinders and the results. And again, it's all
2 dependent on how much gasket is on the flange. It's not
3 dependent on what speed of the grinder is.

4 Q. Now, you were asked a bunch of questions about the
5 certifications -- asked some questions about the
6 certifications. The certifications that you have of your
7 laboratory. Have you guys fundamentally changed anything
8 that you do that would have, back in the day, kept you
9 from being certified?

10 A. No. Everything we have done, the quality control,
11 the blind recounts, those were all done on those sets of
12 samples, let's see now, it's going on over 12 years. So
13 when they say there's a quality control problem, there
14 was no quality control problem. When those samples were
15 eventually analyzed by independent labs, they verified
16 our results. So we didn't have a quality control
17 problem.

18 Q. Now you were asked some questions about, I guess,
19 mischaracterization of fibers and things like that. Is
20 your lab the only lab that sometimes might say there's
21 some Crocidolite fibers when it turns out it might be
22 Anthrophyllite or maybe something else?

23 A. No, sir. You have to think about the sheer
24 magnitude of the data here. Just those three studies,
25 studies I through V, just those studies alone are over

Redirect - Longo

1 50,000 data points. If you start adding in the Crane Co
2 material and you start in adding in all the -- and add
3 the number of errors and typos we've found and then look
4 at all the data, the percentage of error rate here is
5 less than .02 percent. Having an error rate that low,
6 even though it's embarrassing and it sounds terrible, if
7 you look at the sheer magnitude of the data and go, did
8 this have an effect at all of any of the results we've
9 reported? There has been no suggestion that what we
10 reported in those fiber levels in fact are not those
11 fiber levels.

12 Q. In fact, have you seen people within the Scotts
13 case that you've testified in those Consumer Product
14 Safety Commission that misidentified some fibers in their
15 lab. And then McRone, one of the preeminent laboratories
16 in the 1950s and '60s, did they misidentify some fibers
17 as Crocidolite every once in a while?

18 A. They were calling their r-analysis of Vermiculite
19 Crocidolite. You asked me at length about that. And
20 then they re-analyzed it and they came up with different
21 numbers. But that's different than what happened here.
22 They had ten samples and in all ten samples they found
23 Crocidolite and said there's two to five percent
24 Crocidolite in each of these samples. What we have here
25 is tens of thousands of data points, and we have gone and

Redirect - Longo

1 shown a number of either typos or pull down menu issues.
2 But it did not change at all the overall validity of the
3 results. It did not.

4 Q. And in fact, Dr. Longo, is there anything that
5 would keep Mr. Boelter or Mr. Mangold or Mr. Liukonen,
6 or even Mr. Harris, if he wanted to, from submitting a
7 letter to the editor saying here's all the problems I
8 found in Dr. Longo's study and you should de-publish it?
9 People could do that; right?

10 A. It's not happened. When the paper was published
11 in the journal that I published it in, not one person
12 sent a letter to that editor criticizing that work. And
13 that editor, before he allowed that to go to publication,
14 got all the criticisms there was from the Garlock
15 experts, what they thought were problems, and the editor
16 ignored it.

17 Q. Now the last area, and we've got our Power Point
18 up after a few problems. This is a Power Point I used
19 with Mr. Boelter, and it's actually his Power Point. I
20 Showed you this before, right, at the break?

21 A. Yes, sir.

22 Q. Okay. And this is Mr. Boelter's industrial
23 maritime fittings and he talks about what he did. And in
24 fact, he talked about this, and I asked him some
25 questions about valve fitting. And in fact, Mr.

Redirect - Longo

1 Boelter, in his studies, used gaskets that were 39 years
2 old. You're aware of that; right?

3 A. Yes, sir. In fact, he stated in one of his things
4 they were 45 years old. In the Mangold study, the
5 gaskets were over 45 years old back in the '80s. If
6 there was a real problem with these gaskets being so old,
7 the Gypsy was out of service and was in a salvage yard
8 when they went and got those gaskets, then all these
9 results should be the same. We shouldn't be seeing
10 gaskets that just fall out on these old gaskets, you
11 know, or gaskets that stick tightly. That's not what
12 dictates what happens here.

13 What happens here is how long it's been in the
14 system while the system has been running and at what
15 temperature and at what pressure. That dictates how much
16 and what the flange bolting is, and the internal
17 pressure, the hydrostatic pressure, the bolt load
18 pressure, the yield factor on the gaskets. That all has
19 a factor of what happens here, not how long they've been
20 out of service.

21 Q. And so Mr. Boelter used fittings that had old
22 gaskets, and you used fittings that had old gaskets.
23 Mr. Mangold -- you mentioned the Gypsy. What type of
24 system was that that he took those from?

25 A. He took it from a low pressure hot water boiler.

Redirect - Longo

1 This was not a -- this was not a steam system. This was
2 a barge that was used for salvage. So this was not a
3 warship that had essentially had steam-driven turbines.
4 This was run by a diesel engine. And they call it a
5 "hotel system" where it's for the comfort of the small
6 crew that's on that barge.

7 Q. Not designed to power the whole ship?

8 A. No, sir. There was no propulsion on that steam
9 system.

10 Q. Great. Thank you, sir.

11 THE COURT: You may step down. Thank you, doctor.
12 Something else?

13 MR. HARRIS: May I just ask one followup thing? I
14 just want to go back to that Cheng study you talked
15 about.

16 THE COURT: Yes, sir.

17 **RECROSS EXAMINATION**

18 BY MR. HARRIS:

19 Q. It's earlier -- in the peer review literature?

20 A. It is.

21 Q. As far as you know it had nothing to do with
22 litigation?

23 A. That's right.

24 Q. You talked about the numbers being much, much
25 lower than what you would typically find in one of your

Recross - Longo

1 studies; right?

2 A. I don't think I said "much lower." I think I said
3 it was at the lower end of our Crane Co study.

4 Q. For scraping and wire brushing, the range was .115
5 fibers per cc to .33 fibers per cc; correct?

6 A. Correct.

7 Q. I think you said something about how these came
8 off more easily in your direct testimony, is that what
9 you were saying?

10 A. Yes.

11 Q. I'm looking at the sample time and duration of how
12 long it took to do these activities. And so scraping one
13 and wire brushing one pump gasket took 46 minutes.
14 Scraping and wire brushing two valve gaskets -- two
15 flange gaskets took 55 minutes. That's what they
16 reported there; correct?

17 A. That's correct.

18 Q. The other do data that you cited this morning.
19 Those -- they were handwritten data sheets from Newport
20 News, from Shell, from the IHF; is that correct?

21 A. Yes.

22 Q. The Newport News sample you -- as you said, you
23 don't know how they got -- what they were doing when they
24 got 5.6 fibers per cc from that sample; correct?

25 A. Other than them stating they were working for 18

Recross - Longo

1 minutes. Entered and working.

2 Q. Well, yeah. And there's -- but they don't say
3 what they were doing. And they may talk about scraping
4 them off, but that's inconsistent with what their
5 narrative was that said the gaskets were removed first
6 with the needle gun and then with the grinder. Correct?

7 A. Yes, sir. But they're talking about doing work
8 for 18 minutes. They're doing something.

9 Q. And you just don't know. You're relying on
10 handwritten data sheets for your opinion; correct?

11 A. As for all the data that's on there.

12 Q. I want to show you one other thing you did not
13 mention and that was this box here. It says, "possible
14 interferences." The industrial hygienist or industrial
15 hygiene tech who was collecting this sample noted fiber
16 grinding wheel disk as a possible interference; correct?

17 A. Correct.

18 Q. The type of analysis that they did in this study,
19 you can't distinguish between asbestos fibers and other
20 fibers that would be in the workplace. Correct?

21 A. In the workplace.

22 Q. Is that true?

23 A. That's true in the workplace but not for that.

24 Q. This describing -- this person that collected the
25 sample had expressed or stated that a possible

Recross - Longo

1 interference was a fiber grinding wheel disk. Did I read
2 that correctly?

3 A. You did. But there's no --

4 Q. Okay. Well that's what my question was. I know
5 you've got some story about it and that's fine.

6 A. That's not fair, Mr. Harris.

7 Q. That's what he says. And the fact is there are
8 these questions about these -- from these handwritten
9 data sheets. The Shell sample that you cited, you didn't
10 describe it, I don't believe, but actually, it says on
11 there it was intended to simulate the worst case
12 situation; correct?

13 A. Yes, sir.

14 Q. It was -- Shell was doing something in 1985. Not
15 2005, but in 1985, that was trying to simulate the worst
16 case situation. True?

17 A. That's what they state.

18 Q. And their numbers were actually lower than your
19 numbers; right?

20 A. Excuse me, Mr. Harris.

21 THE COURT: Let him finish.

22 THE WITNESS: They're not that much lower.

23 They're right in that range of 25 fibers per cc. But

24 Mr. Harris, you have to understand every time a

25 pipefitter/steamfitter takes a grinder to a gasket and

Recross - Longo

1 removes it, everybody -- you can state that that's the
2 worst case scenario for that person to be exposed to
3 fibers. Because when you're using a grinder, it
4 generates tremendous fiber levels.

5 BY MR. HARRIS:

6 Q. What's interesting is they don't describe in there
7 ever using a scraper. They just describe in the Shell
8 sample using the grinder; correct?

9 A. That's correct.

10 Q. And that was -- that paper was never published in
11 the peer reviewed literature; correct?

12 A. That's correct.

13 Q. Do you know whether it was compressed sheet
14 gaskets, a beater add gasket, or what kind of asbestos
15 gasket it was?

16 A. It was a Durabla gasket.

17 Q. All Durabla gaskets are compressed sheet gaskets?

18 A. They're made by Goodyear.

19 Q. Is that your testimony? You're saying that all
20 Durabla wet gaskets are compressed sheet gaskets?

21 A. I'm not stating that.

22 Q. Thank you, Dr. Longo.

23 **REDIRECT EXAMINATION**

24 BY MR. FROST:

25 Q. Dr. Longo, could you explain the two last things

Redirect - Longo

1 -- the very last thing you were trying to explain and
2 then the thing about the Newport News study?

3 A. When you talk about worst case scenario, what I
4 was trying to explain is that whenever somebody uses a
5 power grinder on a gasket, it is recognized now, and
6 especially in 1995, that is one of the worst case
7 scenarios because the amount of power in that grinder is
8 going to generate tremendous amounts of dust. So, they
9 understood -- Shell understood that that is a potential
10 problem. And like any good company, you know, a company
11 with industrial hygiene, they wanted to know what it was.
12 They took a bystander sample that was 18 -- that was 18
13 fibers per cc.

14 So I don't believe that just because you disagreed
15 with the amount of asbestos that was generated by these
16 industrial hygiene studies that makes them wrong. These
17 are studies done outside litigation and they're just
18 trying to find out what's going on in their own shop.

19 Q. And then just briefly. You were asked a question
20 about the Newport News, and I think -- I can't blow it
21 up. But you were asked about this fiber grinding wheel
22 disk. What were you trying to explain about that when
23 you were cut off?

24 A. There was no interference from these grinding
25 wheels. The wire bristles on that -- and even if it is a

Redirect - Longo

1 -- I'm trying to search for the -- if it's one of these
2 pads that has the polyethylene fibers on it. They're too
3 big. You can't -- you would have something of the size
4 of a log next to a pencil inside the Phase Contrast
5 Microscopy. And if there was ever any interference, it
6 would never be collected. So we have probably done more
7 grinding studies with these "fiber wheels" than anybody
8 else in the country or maybe the world. We have yet to
9 ever see a metal fiber from the grinding wheel ever in
10 the air samples.

11 Q. And some of those grinding wheel studies. Have
12 you done those for a defendant in asbestos litigation?

13 A. Well, that's for Carborundum who hired us to do
14 one of their work practice studies on one of their
15 grinding wheels, and that grinding wheel did not release
16 any asbestos.

17 Q. Okay. Thank you, Dr. Longo.

18 THE COURT: You may step down, Dr. Longo.

19 THE WITNESS: Thank you, Your Honor.

20 (Witness excused at 3:40 p.m.)

21 THE COURT: Let's take a break until ten minutes
22 until four.

23 (Off the record at 3:40 p.m.)

24 (On the record at 3:55 p.m.)

25 MR. FINCH: Good afternoon, Your Honor. At this

Direct - Shoemaker

1 time, the ACC calls James Shoemaker.

2 THE COURT: Come up.

3 THE CLERK: Place your left hand on the Bible and
4 raise your right hand.

5 (Witness duly sworn at 3:55 p.m.)

6 MR. FINCH: Ready to proceed, Your Honor?

7 THE COURT: Yes, sir.

8 **DIRECT EXAMINATION**

9 BY MR. FINCH:

10 Q. Good afternoon, Mr. Shoemaker. Could you please
11 tell the Court your name, address and current employment?

12 A. James Harold Shoemaker. 152 the Green,
13 Williamsburg, Virginia. I retired on July 10th from Chem
14 Corporation as a ship consultant for the U.S. Navy.

15 Q. Did The consulting work you did primarily involve
16 nuclear powered ships for the Navy?

17 A. Yes. I retired from Norfolk Naval shipyard in
18 2008 in Naval Sea Systems Command, naval Reactors. They
19 asked me to go to Newport News to assist in the overhaul
20 of the USS Enterprise, the USS Theodore Roosevelt and the
21 construction a new carrier, the USS Gerald Ford.

22 Q. Okay. On the podium in front of you there should
23 be a copy of your resume which is ACC-3781. Do you have
24 that with you?

25 A. I do indeed.

Direct - Shoemaker

1 Q. And is this a copy of your current CV, except that
2 it hasn't -- doesn't have your retirement date on here;
3 is that right?

4 A. That's correct.

5 Q. Okay. Have you ever testified in a courtroom and
6 in an asbestos case?

7 A. No, sir.

8 Q. Could you tell the judge how you got involved in
9 this Garlock asbestos bankruptcy case?

10 A. Yes. I had -- my son is a partner with Bobby
11 Hatten at Patton, Wornom and Hatten and Diamonstein in
12 Newport News. About four years ago, Mr. Hatten called
13 and asked him if I could help with a case in terms of how
14 the military specifications and the qualifying products
15 apply to join on ships. And I did that for him. Then he
16 called me again this March and asked me if I would
17 participate in this case with Garlock and my experience
18 over the years in shipyards.

19 Q. Okay. And you've never testified in an asbestos
20 trial, and this is your first time testifying in a court
21 anything having to do with asbestos.

22 A. Yes, sir.

23 Q. What is your hourly billing rate for what we've
24 asked you to do here?

25 A. \$150 an Hour.

Direct - Shoemaker

1 Q. And what has been the total amount you've billed
2 so far in this case?

3 A. \$5,000. I expect it will be about \$10,000 by the
4 time we're through.

5 Q. Okay. Could you give the Court a brief run down
6 of your educational background, sir?

7 A. Yes, sir. I graduated from high school and went
8 to work at Newport News Shipbuilding. I worked there in
9 the trades for three years, got selected for nuclear
10 design training when nobody thought nuclear power was
11 going to amount to anything. And I rose to be a senior
12 designer in atomic power design and designed the of
13 aircraft carrier Nimitz. In 1977 I went to the Norfolk
14 Naval Shipyard as a reactor planning yard representative.
15 And Norfolk said hey, why don't you go back to
16 engineering school, which I did, and got a degree in 1981
17 in engineering technology and then went on to my career
18 in Norfolk. So I have a bachelor of science in
19 engineering technology, my design training in Newport
20 News, and I also spent the summer at the university of
21 Virginia at the Darden School in senior management
22 training.

23 Q. In your education in obtaining a B.S. in
24 engineering technology and an MBA in the executive --

25 A. No, sir, I don't have an MBA. I was in a summer

Direct - Shoemaker

1 executive program.

2 Q. The summer executive program. And as your worked
3 as a consultant to the United States government on
4 nuclear ships, did you have to learn how to round
5 numbers?

6 A. Yes, sir.

7 Q. If I were to ask you, sir, to round the number
8 3.445?

9 A. Round it to one -- two decimal places, it would be
10 3.45. And one decimal place would be 3.5.

11 Q. So it wouldn't be an error if you round it one
12 significant digit to get to 3.5?

13 A. That's correct.

14 Q. Could you please review with the Court the nature
15 of your employment and job experience from the time you
16 started at Newport News Shipbuilding in 1961 through the
17 time you became a consultant and left the Norfolk Naval
18 Shipyard in 2008, the types of ships you worked on and
19 what your general duties were?

20 A. Yes, sir. I started pulling cable as a welder's
21 helper until 1961 on USS Enterprise, new construction. I
22 went back to college for a semester and returned to
23 Newport News in February of 1962 and went into the sheet
24 metal shop as a helper. And in that job, I was
25 fabricating lockers and light foundations and furniture

Direct - Shoemaker

1 and we were installing them Polaris class submarines,
2 aircraft carriers, submarine tender the Hunley. And in
3 1963 I got selected for training and went to the
4 machinery design and Atomic Power Design Department where
5 I was trained as a designer a nuclear designer. I stayed
6 there from 1963 to 1977. My main duties from '63 to '77
7 were validating systems aboard ship from '63 to '66.

8 In '66 I went to the Atomic Power Division where I
9 was designing piping systems, and I was assigned the
10 reactor coolant system for the USS Nimitz. And I rose to
11 be a senior designer in 1970. And we laid the keel for
12 the Nimitz in 1968, and I was selected to head up the
13 waterfront liaison group which we informally called the
14 "Trouble Desk," and I did that until 1977 when I got sent
15 to Norfolk as a Reactor Plant Planning Yard
16 Representative and decided to switch from Newport News
17 Shipyard to the Norfolk Naval Shipyard.

18 At Norfolk I went to work in the nuclear part of
19 the Assurance Department as a Nuclear Auditor auditing
20 nuclear processes, and I did that from 1977 to 1981 when
21 they made me the Chief Scheduler for the shipyard where I
22 had 40 schedulers, and we prepared ship's schedules and
23 manpower reports and status reports for ships that were
24 in overhaul. I did that from 1981 until 1987 which was
25 when I was made the Superintendent of the Sheet Metal

Direct - Shoemaker

1 Department with 350 sheet metal mechanics. And I stayed
2 in that job for a year, and they made me the Pipefitter
3 Superintendent.

4 Q. What year was that?

5 A. 1987 -- 1988 -- '87 I was made the pipefitter
6 superintendent. '87 to '88 I was sheet metal. '88 I
7 made Pipefitter Superintendent. I stayed as Pipefitter
8 Superintendent from 1988 until 1997, when I was promoted
9 to the GS-15 as Project Superintendent for the overhaul
10 of the USS George Washington. It was a dry docking
11 overhaul. A year after that I was given responsibility
12 for the overhaul of our aircraft carriers and surface
13 ships until from 1/9/1998 until 2003 then I was promoted
14 to Production Manager for the entire shipyard.

15 From 2003 to 2008, when I retired from the
16 shipyard and went to work for Cameron Corporation as a
17 consultant to the Navy at Newport News, and I did that
18 until last year. And for the last year I've been doing
19 business development for Cameron until recently.

20 Q. Am I correct that the Newport News Shipyard and th
21 Norfolk Naval Shipyard are among the largest shipyards in
22 the world?

23 A. Yes. Newport News currently has about 20,000
24 employees. Norfolk, when I retired, had about 7,000
25 there up to about 9,000 now. But Newport News builds

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Direct - Shoemaker

1 nuclear aircraft carriers and submarines and overhauls
2 nuclear aircraft carriers and submarines. Norfolk is an
3 overhaul yard. They overall primarily nuclear
4 submarines, nuclear aircraft carriers. They also do
5 non-nuclear ships like big amphibious ships like the Wasp
6 and the Saipan and ships like that. So they do --
7 Norfolk's motto is "Any ship anytime anywhere." So if a
8 ship breaks, we fixed it at Norfolk.

9 Q. And am I correct that the Newport News Shipyard
10 and the Norfolk Naval Shipyard would have been among the
11 largest shipyards in terms of the number of ships they
12 could hold and people to work there in the '60s, '70s and
13 '80s?

14 A. That's correct. Shipyards have closed and shrunk
15 during that time. Norfolk and Newport News still are the
16 biggest in the country. And, of course, the biggest
17 fleet concentration in the country is in Norfolk. So,
18 that's right.

19 Q. Have you prepared a list of the ships that you can
20 recall working on or being aboard during the overhaul or
21 new construction process at the Newport News Shipyard and
22 the Norfolk Naval Shipyard?

23 A. Yes, I have. That list consists of, I counted it
24 up last night, 58 ships, primarily aircraft carriers and
25 submarines, and primarily ships that were built since the

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1 Enterprise in 1961. There are three older ships on there
2 that I was involved with at Norfolk, two battleships, The
3 USS Iowa and the USS Wisconsin, that we did overhauls on.
4 I drew the job as a Senior Superintendent when the 16"
5 gun blew up on the USS Iowa. Then the USS Coral Sea,
6 which was a World War II aircraft carrier which we did a
7 major overhaul on in 1983 when I was Chief Scheduler.

8 Q. Is the exhibit, I think you have it in front of
9 you, ACC-5063A. Do you have that, Mr. Shoemaker?

10 A. I don't see the exhibit number on it.

11 Q. May I approach the witness, Your Honor?

12 THE COURT: Yes, sir.

13 BY MR. FINCH:

14 Q. Is Exhibit 5063A, are those the list of ships you
15 have --

16 A. Yes, sir. Those are the ships I worked on.

17 Q. Okay. And am I correct that the vast majority of
18 these ships were built from 1961 on?

19 A. That's correct. All but those three I just
20 mentioned.

21 Q. Okay. From your job duties and job experience did
22 you obtain knowledge of the various applications for
23 which the Navy required or permitted asbestos sheet
24 gaskets to be used?

25 A. Yes. I did that in numerous jobs I had over the

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1 years. The first was when I was a young designer in the
2 late '60s and designed the Nimitz. The base ship
3 specifications would specify the types of materials to be
4 used in each system, and that information would be drawn
5 down onto system diagrams, piping system diagram, piping
6 system arrangements and builds of material. The material
7 would then be ordered and the systems would be built, and
8 the gaskets would be installed on the ship. And then
9 during my period of time running the "trouble desk," of
10 course as problems developed with the construction or the
11 testing of that particular ship, I would be involved in
12 gasket replacement or piping changes and that kind of
13 thing.

14 Q. Go ahead. In general, what were the applications
15 where the Navy permitted or allowed asbestos sheet
16 gaskets to be used?

17 A. Generally, it was low pressure steam systems. By
18 that I mean 350 psi and below. And that supplied things
19 like hotel steam, auxiliary steam, perhaps, to
20 steam-driven pumps or to things like the heating system
21 for the ship or the laundry. But you also saw it in
22 other systems, such as sea water systems, fuel systems,
23 those kinds of things. So they were in numerous systems
24 throughout the ship.

25 Q. In the course of your employment from the 1961,

Direct - Shoemaker

1 beginning in Newport News, all the way through 2008 when
2 you left the Norfolk Naval Shipyard, did your job
3 directly involve the observation or supervision of
4 shipyard workers who were fabricating, installing and/or
5 removing asbestos sheet gaskets and asbestos packing?

6 A. Yes. And, again, in different phases. At Newport
7 News, during my time as the waterfront liaison leader,
8 but particularly during my time as a Pipefitter
9 Superintendent. The nine years I was a Pipefitter
10 Superintendent at Norfolk it was my -- I was the shipyard
11 expert in how that worked was done. We had written
12 processes for how we did the work. We trained the people
13 in the courses. Any requirements changed, we changed
14 with them. We had had about 59 different processes for
15 pipe fitting.

16 Q. How many pipefitters have you worked with or
17 supervised in your career?

18 A. Probably somewhere between three and 4,000.

19 Q. And how many times did you observe a worker
20 removing gaskets, asbestos sheet gaskets, from a flange
21 or other piece of equipment?

22 A. Thousands. Many thousands.

23 Q. In your course of your employment over the same,
24 almost 40 years?

25 A. 50. 52 this month.

Direct - Shoemaker

1 Q. Yeah, you're right. At almost 50 years, did your
2 job directly involve the observation or supervision of
3 shipyard workers who were fabricating, installing or
4 removing thermal insulation?

5 A. Yes. In 1992 and '93 we combined the insulators
6 at Norfolk Naval Shipyard. The insulation shop had been
7 an independent shop. We combined them into the
8 pipefitting shop, and I became their superintendent.

9 Q. Approximately how many times did you observe a
10 pipe coverer or, an insulator or other worker removing
11 insulation from either pipes or equipment during the
12 course of your career?

13 A. Again, thousands. I actually wrote the procedures
14 for doing some of that during the construction of the
15 Nimitz on the reactor coolant system when we had to
16 replace a major valve. But, primarily, after I went to
17 Norfolk was where I would see that taking place.

18 Q. As part of your job at the Norfolk Naval Shipyard
19 did you have to become an expert in the types of pipes
20 and systems that will be used on Navy ships?

21 A. Yes. And the reason for that was there were
22 different types of processes on different types of pipe.
23 For example, a cold water, sea water system might be made
24 out of thin-walled copper-nickel or copper and raised
25 system and silver braised systems and bolted together.

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1 Where a high pressure steam system would be made out of
2 heavy walled carbon steel, welded together or put
3 together with Flexitallic gasket. The same for the
4 nuclear systems. You would have materials like nickel
5 copper, Inconel, stainless steel, heavy walled pipe to
6 thin wall pipe. So you had to know how to essentially
7 take apart and put together every type of piping system
8 the Navy had on every class of ship they had, and that
9 went from everything from your natural drains to main
10 steam systems.

11 Q. As part of your work at the Newport News Shipyard
12 and the Norfolk Naval Shipyard did you have to come to
13 understand and become familiar with the types of trades,
14 who would do various jobs during overhaul of a large Navy
15 ship and the sequencing that activity would take place
16 in?

17 A. Yes. And there were two parts to that. In my
18 final job when I was a Production Manager at Norfolk, all
19 of the trades worked for me. So I had to have a working
20 understanding of what each trade did, how they did it,
21 and what the prohibited work practices are, what the
22 preferred working practices were and how we would
23 efficiently do that work. So, yes.

24 Now, the sequencing -- and that's the -- if you
25 think about that, that's how you do the work, how you

Direct - Shoemaker

1 bolt up a flange, how you weld a joint, how you paint the
2 hull of a ship, how you put a ship in dry dock, those
3 kinds of things. And then you had the other part of the
4 equation which is when you do the work. Now during my
5 time as the Chief Scheduler, that was my job is to figure
6 out when we would overhaul the engines, when we would
7 take the galley down, overhaul the galley, the laundry,
8 the feed piping, the fire main piping.

9 So you had a very detailed sequence and schedule
10 of how you did this, and then you applied the manpower to
11 that to make sure you got that done efficiently. We
12 called them "ship availabilities," and that's because the
13 Navy made a ship available to the shipyard for a specific
14 period of time. And the Fleet scheduling folks would
15 have plans for that ship when it left the shipyard, so it
16 was of paramount importance you finish your work, get the
17 ship through sea trials, get the ship delivered back to
18 the Fleet so the Navy does what the Navy does with its
19 ships.

20 Q. The Court has heard testimony that safety controls
21 for gaskets didn't come into place in the Navy until the
22 late '80s versus controls for insulation in the early
23 '70s. Are you familiar with?

24 A. I am familiar with that and that's correct.

25 Q. Okay. Was it ever part of your job

Direct - Shoemaker

1 responsibilities to help train or oversee pipefitters so
2 that they could meet the new OSHA regulations in the late
3 '80s?

4 A. Yes. What happened was in the late '70s we became
5 aware in the shipyards that insulation was a health
6 problem. And all of us that worked with it or associated
7 with it had to have a physical every year, an asbestos
8 physical, where our lungs and so forth were checked. But
9 we thought the problem was associated with piping
10 insulation. We didn't think at that time that the piping
11 was associated with gaskets.

12 And what happened was the limits, the exposure
13 limits to asbestos that we saw some of it in Dr. Longo's
14 report, dropped dramatically from the '70s until about
15 1990. So the amount of particulate that you could have
16 in the air became smaller. Well, that became a problem
17 with the gaskets. Because what we routinely did was what
18 essentially what you saw in Dr. Longo's video.

19 We would break a flange apart. The sheet gaskets
20 would be stuck to the flange, and we'd scrape off what we
21 could with a putty knife. Then we'd go after it with our
22 pneumatic wire brushes, clean it up, and we'd put the
23 joint back together. We changed that in the late '80s
24 and we -- that was a surprise to us. We didn't think we
25 -- when the industrial hygiene folks said hey, you've got

Direct - Shoemaker

1 to find a way to do this without getting dust in the air.

2 You could see the dust in the air.

3 Now, we didn't -- those of us in the trades didn't
4 know how much was asbestos and how much was dust, but you
5 could see it was a dirt producing operation. So the
6 pipefitters were saying -- oh, they were moaning and
7 groaning that if we couldn't use their air-driven wire
8 brushing brushes, it would take forever to get the
9 residue off the grinder. So we set up some mock-ups
10 there in the shop to figure out how we were going to do
11 that. So we ended up with water bottles and putty knives
12 and hand brushes, and that's the way we'd do it, and
13 that's the way we do it today.

14 Q. Your Honor, at this point I would like to proffer
15 Mr. Shoemaker as an expert in the following areas: The
16 manpower requirements of trades involved and sequencing
17 of work during the naval ship construction and overhaul
18 in the naval shipyard; the work methods, tools and
19 materials used for gasket fabrication, removal and
20 cleanup on Navy ships under construction or overhaul; the
21 work methods, tools and materials used for fabrication,
22 removal and replacement of insulation on valves, pipes,
23 flanges and other equipment on Navy ships during
24 construction and overhaul; and the efforts or training
25 required for asbestos -- to comply with asbestos safety

Cross - Shoemaker

1 procedures and controls involving asbestos gaskets and
2 insulation on Navy ships during construction and overhaul
3 during the times he has experience.

4 MR. HARRIS: Your Honor, may I voir dire the
5 witness, please?

6 THE COURT: Yes.

7 **CROSS-EXAMINATION**

8 BY MR. HARRIS:

9 Q. Good afternoon, Mr. Shoemaker.

10 A. Good afternoon, Mr. Harris.

11 Q. I just wanted to follow up and make sure I
12 understood. You didn't become in charge of the
13 insulators until the 1990s; correct?

14 A. That's correct.

15 Q. And they were installing non-asbestos insulation;
16 correct?

17 A. That's correct. But we were still sampling ships
18 for asbestos. And we would find it, for example, on the
19 Kennedy.

20 Q. And then when they did their -- when they removed
21 the asbestos, it was as part of an abatement, correct,
22 when they were using controls?

23 A. Oh, yes. They were using controls. I wouldn't
24 necessarily -- I guess you could call it abatement. But
25 they were removing it because we didn't need to remove

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Cross - Shoemaker

1 the pipe or repair a component or something like that.

2 Q. Mr. Finch asked you a question, and I'm not sure
3 if you caught it. He asked if insulation controls were
4 instituted in the early '70s. But it's your
5 understanding -- your experience was that the insulation
6 controls were instituted in the late '70s; correct?

7 A. 1978 was the first time I saw it.

8 Q. Okay. The experience that you had in the
9 shipyards was primarily new construction in the '60s and
10 the first part of the '70s. Correct?

11 A. That's correct. Up until I went to Norfolk in
12 1977.

13 Q. Very little construction -- the new construction
14 you were involved in was nuclear ships; correct?

15 A. That's correct.

16 Q. It was not conventional ships; correct?

17 A. That's correct. Well, they were a little bit
18 conventional but nothing -- 99 percent nuclear.

19 Q. In connection with your work in this case you've
20 not done any research to find out about the work methods
21 from the 1950s and 1960s in the shipyards; is that
22 correct?

23 A. Other than during the preparation for this case
24 watching, I believe it was a 1944 video and some early
25 instructional things that I've looked at. But other than

Cross - Shoemaker

1 that, no, sir, I have not done any research.

2 Q. That was a video that came from the debtors, from
3 -- Garlock or Garlock's lawyers produced it to the
4 plaintiffs' lawyers?

5 A. I believe that's correct. Yes, sir.

6 Q. You said those were not the practices that you saw
7 in the new construction work that you did in the '60s and
8 '70s?

9 A. That's correct.

10 Q. Your Honor, at this point I don't object to him
11 being offered as an expert in these areas in the 19- --
12 late 1970s, '80s and '90s in these areas. But before
13 that, we do object because it's -- all his expertise is
14 based upon is experience, and his experience was limited
15 to new construction.

16 THE COURT: We will admit him as an expert with
17 that caveat.

18 MR. FINCH: Well Your Honor, I think I can lay a
19 foundation. He's also an expert in the methods that
20 pipefitters used in the 1960s because he worked with man
21 pipefitters and his career began before that. Is that
22 true, Mr. Shoemaker?

23 THE WITNESS: That's true.

24 **REDIRECT EXAMINATION**

25 BY MR. FINCH:

Redirect - Shoemaker

1 Q. So you're familiar with the work practices that
2 pipefitters and other workers used to fabricate, remove
3 and clean up after removing asbestos-containing gaskets
4 during the time in the -- between -- you started at
5 Newport News in '61 up until the time you quit.

6 A. I did observe that in the '60s. Now, Mr. Harris
7 is correct I did not observe it necessarily on ships in
8 repair and overhaul. But it was not unusual to go have
9 to cut out a piece of pipe and change it or remove a
10 gasket during a test phase in the '60s. The methods we
11 used then were the same as ones we used in overhaul.

12 Q. Your Honor, with that foundation, I do think he
13 has the expertise to talk generally about --

14 THE COURT: All right. We'll let him testify to
15 that.

16 BY MR. FINCH:

17 Q. Okay. Mr. Shoemaker, can you give an idea to the
18 judge, the Court, the type of repair work that was done
19 during overhaul of a ship at the Newport News Shipyard or
20 the Norfolk Naval Shipyard?

21 A. You had -- a lot depended on the type of ship.
22 But as I said, ships were made available to the shipyard
23 to do maintenance on. Now in the case of an aircraft
24 carrier, if you take the midlife refueling of an aircraft
25 carrier, like the USS Theodore Roosevelt, which is ready

Redirect - Shoemaker

1 to complete right now, that's a four year process. A
2 more typical process might be ten and a half, 11-month
3 dry docking availability of a ship like the USS George
4 Washington, which is a Nimitz class carrier.

5 Now, typically we would assign a project team to
6 run that overhaul a year in advance, and this is the same
7 at Newport News or at Norfolk. And the project team
8 would consist of a project superintendent and the various
9 managers. We would divide the ship up into zones,
10 perhaps a propulsion plant, flight deck, the habitability
11 spaces, and we'd have a detailed schedule for each.

12 Then we'd get the ship ready at the naval station.
13 We would bring the ship in, put it in dry dock, and we
14 would have what we would call "phases." We would have
15 the planning phase, which is what I just described. We
16 would have the rip-out phase. Then we would have the
17 repair phase, installation phase, tests, and
18 certification phases. Now these phases --

19 Q. Let me stop you right there. You just mentioned
20 something called the "rip out phase?"

21 A. Yes, sir.

22 Q. What is that and how long did it typically take?

23 A. What you typically would do is you would tag out
24 the systems of the ship. You had to take the ship down
25 to what we call cold iron. So you were dealing with

Redirect - Shoemaker

1 deenergized, de-pressurized systems, and the systems were
2 safe to work on. Someone mentioned this morning "hot
3 work." You had to make sure that the fuel oil was off
4 the ship and you were safe to do hot work. You would
5 bring it in and then you would -- one of the first things
6 you would do is you would sample the insulation to make
7 sure it was not asbestos, and then you would start
8 removing piping and components, pumps motors valves, and
9 you would send those either to the inside shop to be
10 overhauled or new valves or pumps or motors or whatever
11 it was to be put in place. You would make whatever
12 modifications you needed to make to the ship, and you
13 would do that in the first six weeks.

14 Now, one of the reasons we did the sampling is
15 because if work was done on the ship overseas in the
16 Mediterranean, for example, we were never real sure
17 exactly what, say, a shipyard in Bahrain might stick into
18 the ship. So we still sample to this day even on the new
19 ships to make sure there's not asbestos. So you had
20 about a six-week period there where you were
21 disassembling the ship. You might think of it if you
22 were doing a renovation on your house ripping out a
23 kitchen or bathroom or something like that, only a much
24 bigger scale.

25 It depended on the type of ship, whether it was an

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1 a submarine or an LHA or LAD, it might take a little
2 longer, might be shorter and depending on what you were
3 doing to the ship. Typically, what I'm describing here
4 on an aircraft carrier is about a 350 to 500,000 man day
5 effort over the course of a year is what it amounts to
6 with trades and ship's force.

7 Q. So the rip out phase would be six weeks?

8 A. About six weeks. Right.

9 Q. Then there would be a phase when they would be
10 working on or repairing valves and pumps and equipment?

11 A. They would actually be taking them out, taking
12 them to the shop. For example, there's 289 sea valves on
13 a Nimitz carrier. Every one of those would be taken out.
14 We'd go to the inside machine shop. They'd be
15 disassembled and cleaned, checked and tested. Then we'd
16 bring them back and put back them in the ship before we
17 undock the ship.

18 Q. Could you describe for the Court what the steps
19 involved to replace or refurbish a valve?

20 A. Well you start -- again, let's take a specific
21 system. Let's talk about the main feed valve which is
22 typically a 600 psi hot water system. It would be
23 insulated and would have lagging pads on it, would cover
24 the bolts and the flanges and the bonnet. You would tag
25 the system out to make sure the system was safe and cold

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1 and was authorized to work on it. You would have the
2 insulators, and they would go out down and sample the
3 insulation and make sure it was not asbestos. Then they
4 would go down and remove the insulation lagging pads
5 which would be around the flanges. They would skin back
6 the insulation, generally, one bolt length, about 6", so
7 that the pipefitters could get in and unbolt the valve.
8 Then the pipefitters would go in, different trade.

9 Depending on the size of the valve, in this case
10 if we're talking 6" or 8" valve, you would have to rig it
11 out. So you would attach rigging and chainfalls to the
12 valve, and rigors would do that. Pipefitters would
13 unbolt the valve, drop it out, blank it off, and send it
14 to the inside shop. And then the pipefitters shipboard
15 would clean up the gasket faces, the gasket faces on the
16 valve which would be cleaned up by the machinists at the
17 inside machine shop. But you did that on virtually,
18 literally, well, thousands of valves in the whole ship,
19 hundreds of valves in the Engine Room and propulsion
20 space.

21 Q. How many gaskets are removed from each valve or
22 pump?

23 A. In a valve in a pipeline, you'd have at least two
24 valves in the line joint in the water way boil of the
25 pipe. Then you'd have a gasket at the bonnet where the

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1 hand wheel and stem go through the top of the valve. So
2 you'd have at least three on a valve, and you'd have six
3 surfaces that needed to be cleaned up on a valve. For a
4 pump, you'd have suction and discharge and probably
5 bypass lines. So you'd probably have six or eight on a
6 pump, depending on whether it was an electric pump or
7 steam-driven pump or that kind of thing.

8 Q. Approximately how many pipefitters and machinists
9 would be on the ship at one time during overhaul of a
10 large Navy ship?

11 A. On a carrier, I would typically have 350
12 pipefitters a day on a carrier. There would be about 50
13 in each Engine Room on the first shift. We generally
14 work three shifts a day. And we would divide it up about
15 75 percent on first shift, about 15 on second and ten on
16 third. So about 350 pipefitters and probably about 275,
17 300 machinists that you'd expect to see on the ship every
18 day on an aircraft carrier. Total number for everybody
19 on the ship was about 1,250 to 1,500 people on the ship
20 at Norfolk 10-month, 11-month carrier overhaul at
21 Norfolk.

22 Q. Was it a common thing you could have multiple
23 workers in the same area of the ship working on
24 equipment, changing gaskets, replacing gaskets, removing
25 gaskets?

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1 A. Typically, on an aircraft carrier you had enough
2 room where you could get lots of people in the same
3 space. That was a real problem on a submarine. You'd
4 have a lot of people standing over each other as you were
5 trying to disassemble a submarine, but it was the same
6 idea.

7 Q. What you just described. How would that vary
8 based on the kind of ship you were talking about?

9 A. Well if you take the base ship I just described,
10 which was a dry dock and availability on an aircraft
11 carrier. If you went to an LHA or LAD, which is an 800'
12 amphibious assault ship that looks a lot like an aircraft
13 carrier -- it's a helicopter assault ship -- probably 75
14 percent of that. A submarine is probably 40 to 50
15 percent of that. A destroyer, maybe 30 to 40 percent of
16 that. So you'd have probably, oh, maybe five, 600 people
17 on a submarine, and they'd be spread out more across
18 three shifts just because of the geography of what you
19 were trying to get.

20 Q. How often would Navy ships be overhauled?

21 A. Aircraft carriers are overhauled every two years.
22 We have two kinds of overhauls. We have what we call a
23 six-month phase incremental availability which we bring
24 the ship in. We don't put it in dry dock but we do six
25 months' worth of work. Generally, it's about 30,000 man

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1 days a month. So that's about 180, 200,000 man days
2 worth of work. The ship's at pier side. You'd take it
3 down to cold iron, make repairs and make modifications.
4 Then every seven years we dry dock a ship.

5 But a carrier would come in every two years and
6 repairs would be done, modernization would be done. Then
7 she would go out and deploy and do her training work-ups,
8 deploy and come back and start the cycle all over again.
9 That's pretty typical for an aircraft carrier. So, for
10 example, the Coral Sea. When we saw the Coral Sea in the
11 1983-84, she was built in either '43 or '44. So she's
12 probably seen 15 or 20 overhauls, including a major
13 overhaul where they added the flight deck to her in the
14 course of her availability.

15 So we can be proud of our U.S. government and
16 Navy. They take care of them and keep them up,
17 particularly the nuclear ones.

18 Q. So on your list of ships, for example, you've got
19 the Coral Sea there, CVA-43, and you've got the
20 Enterprise CVN-65. Am I right that the number at the end
21 generally corresponds to the year the ship was built?

22 A. No. Actually, it's the hull number of the ship.
23 What that indicates, for example, is the 65 for the
24 Enterprise, she's the 65th aircraft carrier that the
25 nation had. The Coral Sea was, I believe, the 43rd

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1 aircraft carrier of the Navy.

2 Q. Okay. What does the N versus the A signify?

3 A. N is -- which one are you looking at now?

4 Q. Well, the Enterprise.

5 A. Nuclear. CVN means Carrier Vessel Nuclear is what
6 that means.

7 Q. So CVA would mean it's not a nuclear ship?

8 A. CVA means Carrier Vessel Attack. We dropped the
9 -- the Nimitz class actually were CVANs when we built
10 them in '68. But long about the '70s, attacking people
11 was politically incorrect so we dropped the A's.

12 Q. It was politically incorrect for the Navy to call
13 its warships "warships?"

14 A. Can't attack anybody.

15 Q. All right. So by the time the Coral Sea got to
16 the Norfolk Naval Shipyard it would have gone through
17 overhaul many times?

18 A. My guess is at least 15, probably 20.

19 Q. Okay. Captain Wasson said that approximately 75
20 percent of flanges used in systems where asbestos sheet
21 gaskets would be used were yellow metal. Is that
22 consistent with your experience?

23 A. I would say that's a little high. I would say
24 it's probably more like 50 percent. There's a lot of
25 yellow metal, and by that he's talking about

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1 copper-nickel and copper and bronze primarily that he
2 sees in sea water systems. All the salt water stuff is
3 generally copper, copper-nickel and bronze. We would see
4 some metal. You would see some brass in air systems. It
5 was pretty specialized.

6 Q. What about steam lines?

7 A. Steam Lines are generally steel. And depending on
8 the class of ships, they're generally carbon steel. It's
9 interesting. Nuclear powered ships cannot generate
10 superheated steam. So that means that they can only
11 generate steam up to 600 psi. So, they're carbon steel.
12 Whereas an oil-fired ship like the Kennedy can generate a
13 1,200 pound system, so that would be what we call -- I
14 can't say it. Chrome moly steel is what we call it, but
15 it's higher tensile strength than carbon steel. But
16 steam systems, propulsion systems above 300 pounds is
17 generally steel.

18 Q. What about what percentage of flange is carbon
19 steel versus yellow metal in the Engine Room and systems
20 where asbestos sheet gaskets would be used?

21 A. I would say probably in the Engine rooms, probably
22 60 percent are steel. Some of those are Flexitallic
23 gaskets, the high pressure ones. And the ones between
24 300 and 600 pounds are asbestos sheet gaskets.

25 Q. How can you tell the difference between carbon

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1 steel and bronze and brass?

2 A. Well you can generally tell by looking at it. But
3 the easiest way is to stick a magnet on it. But you can
4 tell by looking at it. A lot of times the valve will
5 have raised embossed letters as to what the material is.
6 And steel rusts. So if it's installed, you're probably
7 going to see some evidence of rust in it if you're
8 looking at it in an installed position.

9 Q. We've got a technical difficulty because of the
10 red dot.

11 A. I didn't touch it, I don't think.

12 Q. Okay. What is that piece of equipment made out
13 of?

14 A. That looks like steel to me. And I think if
15 that's --

16 Q. This is a picture from Dr. Longo's Crane Co
17 studies?

18 A. Yeah. And those valves came off the Lexington.
19 You see that tag on it it says B4, which was the valve
20 number. And in that series of photographs Dr. Longo has
21 -- you'll see that valve in its installed position aboard
22 ship before it's been cleaned up and painted, and it's
23 rusted.

24 Q. Are you talking about that?

25 A. Yeah. That's nine.

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1 Q. How can you tell what that valve is?

2 A. Well there's rust all over it, so it's steel.

3 Q. And then what is that?

4 A. That one says "steel," so you know it's steel.

5 See the embossed letter right below the bridge wall
6 there?

7 Q. That?

8 A. Yes, sir. Right to your right. Right there.

9 Q. The Court's already heard testimony a little bit
10 about this. What are the various types of gaskets that
11 are found in a typical Navy ship, and what are the
12 applications for each of these gaskets?

13 A. Well you have the Flexitallic or the spiral wound
14 gaskets which you would have in the high pressure steam
15 and high pressure hot water systems, like feed. Those
16 are not what we're talking about here today. They're
17 metal spiral wound with asbestos in between them. Then
18 in the, what I call the low pressure steam system, 300
19 pounds and below is where you would see most of the
20 asbestos gaskets, and they're generally an eighth of an
21 inch thick or so here. You can see on this joint right
22 here where the -- on the left-hand side of the photograph
23 where the --

24 Q. There?

25 A. Yes, sir, where the gasket's between the two

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1 flanges. But you would also see flex gaskets in stuff
2 like fuel oil systems and in some salt water systems, and
3 they would be defined in the ship's specifications as
4 system diagrams. And in fact this Mill Standard 777 that
5 I became aware of during this case spells out for surface
6 ships what kinds of material and gaskets you use in the
7 various systems on a non-nuclear surface ship. But there
8 were primarily steam systems, hot water systems. Now you
9 see in cold water systems some fresh water, cold water
10 systems, stuff like potable water where you see some
11 rubber gaskets. But far and away the flexible sheet
12 gaskets and flex gaskets, and particularly in the
13 engineering spaces is where you saw them mostly.

14 Q. Okay. And what's the approximate percentage of
15 gaskets that are asbestos sheet gaskets in the Engine
16 Room?

17 A. I would say 40 to 50 percent are asbestos sheet
18 gaskets.

19 Q. How would you know what type of gasket to install
20 or remove in a particular place? What are the things you
21 consult?

22 A. What we call a Technical Work Document. It is
23 drawings. And the engineering work documents would tell
24 you what to do. And that had its roots in the system
25 bills of material and system piping arrangement drawings

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1 that existed for every system on the ship. So you would
2 go to the piping arrangement drawing for the main steam
3 system in Engine Room No. 1, for example, and there would
4 be a bill of material associated with that. And one of
5 the items on the bill of material would be the gasket,
6 and there would be a mil-spec or something that would
7 tell you the type of gasket to put in.

8 Q. Captain Wasson showed us something called the
9 BuShips Manual and Mill Standard 777. Are you talking
10 about something different?

11 A. Yeah. I'm talking about what we would call the
12 lower level documents. What those documents are Captain
13 Wasson described are the documents used to make the
14 drawings to build the ship. Now the way you do this, at
15 least on modern ships and nuclear ships, is you go to
16 those drawings and you look to see what it is you're
17 going to replace.

18 Now, you have three levels of repair in the Navy.
19 You have what's called unit level repair, which is the
20 sailors working on their own ships. In reading Captain
21 Wasson's deposition he was a chief engineer, I believe,
22 on the Constellation. So he was fixing stuff all the
23 time. That was unit level repairs. He may or may not
24 have had drawings, so he might have gone to those base
25 documents to tell him what kind of -- if he had something

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1 that was broken what to replace it with.

2 Then you will what was called depot or
3 intermediate level repairs, which was a shore
4 intermediate facility. We had those at Norfolk and San
5 Diego and Subic Bay and places like that. Again, that's
6 sailors working on ships. They would more than likely
7 have the drawings in those facilities because they were
8 shore-based facility.

9 In shipyards, we were called the depot level. If
10 we needed a drawing, we had access to it to tell us
11 exactly what was installed on a ship. And on the more
12 recent ships, the nuclear ships, we had what was called
13 non-deviation drawings that you couldn't deviate from
14 what was on that drawing without specific Naval Sea
15 Systems Command approval.

16 Q. Did you regularly rely on either the BuShip
17 Manuals or Military Standard 777 for the type of work you
18 can?

19 A. No. I relied on the ship's drawings and ship's
20 specifications for the ship I was working on.

21 Q. That would tell you what was actually on a
22 particular ship?

23 A. That would tell me what was required for a
24 particular ship. You may run into a situation when the
25 ship was built and for some reason couldn't get the

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1 material, or something changed. Whereas, the shipbuilder
2 would have to go back and ask the Navy for permission to
3 substitute some piece of equipment or for something he
4 couldn't get, didn't have or wouldn't fit. And he'd have
5 written approval to put a different type of valve or
6 something like that and it was on the drawings and you
7 would see that. But there would also be a paper trail
8 that approved that.

9 Q. Can you give the Court an example of how something
10 that was permitted in a BuShips manual or military manual
11 777 could differ from what was on a particular ship?

12 A. Yeah. For example, well, if you go as far back as
13 the 777, it will give you options of kinds of gaskets or
14 that kind of thing. But it was not uncommon -- I'll use
15 Nimitz as an example. When the Navy decided to do away
16 with asbestos in the late '60s and early '70s, the word
17 came down from the Navy to Newport News Shipbuilding,
18 yeah, we want you to go with fiberglass insulation on the
19 insulation for the pipe, but we want you to use up the
20 stock of asbestos that you bought. So we weren't real
21 sure what you had in that case. And so you might have to
22 go back and write an LAR and say, look. The drawing
23 specifies asbestos, but I found fiberglass. And you
24 could find out in time to time from -- for example, if
25 you went to get a particular type of valve and you

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1 wouldn't buy that valve. You're seeing that right now
2 big time on the building of the USS Ford. They're having
3 trouble getting valves that have been specified, so you
4 they're going to have to do some substitutions. But
5 those substitutions will have a paper trail when which --
6 by the time the ship is built.

7 Q. Okay. Turning away from specifications and now
8 back to gaskets. Did you become familiar with who the
9 manufacturers were of the asbestos sheet gasket material
10 that were most commonly used at the Norfolk Naval
11 Shipyard and new Newport News Shipyard?

12 A. Yes, and I did that in several ways. During the
13 design and construction of Nimitz we purchased them -- we
14 had purchase orders with the various gasket companies
15 where we would order the material and put it in. But the
16 sheet gaskets in particular, when you break the joint
17 apart, the name of the manufacturer is written on the
18 gasket. You might not be able to see the whole name but
19 you could see some letters of the name. And you knew if
20 it was Garlock or Crane or whatever it happened to be.
21 We saw a picture this morning of an uncut sheet that had
22 "Garlock" all over it. Well, as you break a joint like
23 this apart it's not unusual to see "G-A-R" or "L-O-C" or
24 something like that on the ship.

25 Q. Am I correct that pipefitters and other trades

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1 that had to replace asbestos sheet gaskets were trained
2 such that if they knew they had to put an asbestos sheet
3 gasket into a particular piece of equipment, they would
4 will be likely to be taking out asbestos sheet gaskets?

5 A. True. But the way we did that -- by the time we
6 had asbestos controls, they would be working through an
7 asbestos work document. We told them what to take out,
8 what process to use to take it and what to put in. And
9 what we were attempting to do was to go further than that
10 was to have a work package and material package they
11 could take to the job site where they had the nuts and
12 bolts and gaskets and whatever they needed to install
13 that valve. We weren't a hundred percent successful with
14 that, but that was the idea.

15 Q. From your experience at the Newport News Shipyard
16 and the Norfolk Naval Shipyard, I want to talk about
17 gasket making, gasket fabrication. Can you describe to
18 the Court the various ways that asbestos sheet gaskets
19 were made and the tools used to make them at either of
20 those shipyards during your experience?

21 A. There's a number of ways. The discussion we heard
22 this morning was about tapping out a gasket with a ball
23 peen hammer on a flange face. And you would occasionally
24 see that done if a pipefitter had to make one gasket that
25 he needed one gasket, onesies and twosies. The preferred

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1 way to do it was to make the gaskets in bulk and all. At
2 the naval shipyards, at Norfolk and Puget and at Newport
3 News, we had a gasket room whose job was to pre-determine
4 what the gaskets were that were needed, take a sheet of
5 gasket material, cut it up into little squares and then
6 cut the waterway bore, cut the outside down where the
7 gasket, cut the bolt holes, and have a package of those
8 ready to be staged for the pipefitter to take to the
9 ship. So, that was the preferred method. Now you could
10 do it -- you could get them from the gasket room, which
11 is mostly what people did. You could --

12 Q. How would the gaskets get made in the gasket room?

13 A. Oh, thousands.

14 Q. How would they do it? What kind of tools --

15 A. We had different kinds of equipment. You would
16 take one of these 5' by 5' sheets of gaskets and you
17 would either cut it up on a band saw or take it to a
18 shearer. And you'd cut it up into squares big enough for
19 the gasket. Then you would take it into the gasket room
20 where we had a machine that would cut the outside
21 diameter would cut the waterway bore, and we would punch
22 the bolt holes in it. And so they -- and there's some
23 pretty good photographs of the Puget Sound gasket room
24 that I believe were in the Puget industrial hygienist's
25 deposition. That's a pretty typical gasket room in a

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1 shipyard.

2 Q. Okay. Have you seen Dr. Longo's videos which show
3 the fabrication of an asbestos sheet gasket with a ball
4 peen hammer on a flange?

5 A. I have. Yeah.

6 Q. Is that something you have seen out in the field
7 at the Norfolk Naval Shipyard and Newport News Shipyard,
8 even if it was not something --

9 A. I've seen it done. It's not a preferred method.
10 I've seen it done.

11 Q. Is the ways and methods Dr. Longo and the
12 steamfitter that did that in his work substantially
13 similar to one of the ways in which asbestos gaskets were
14 made in the shipyards where you worked?

15 A. Yes.

16 Q. I want to turn now to gasket removal. By that, I
17 mean gaskets that are asbestos sheet gaskets that are
18 stuck to a flange. From your experience at the Newport
19 News Shipyard and Norfolk Naval Shipyard, can you please
20 describe for the Court the work methods and tools that
21 were used by shipyard workers to remove asbestos sheet
22 gaskets from a ship that was being worked on?

23 A. Sure. Well, first, you'd have to disassemble the
24 valve or the component from the piping system. You could
25 do that -- as I first described, take the bolts out.

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1 Either take it out by hand if they're a small valve, rig
2 it out. You might open it with a flange spreader or
3 wedges or something like that. You might have to loosen
4 the pipe hangers on the system so you got enough room to
5 break the flanges apart. The valve would come apart, and
6 the vast majority of the sheet gaskets would be stuck.
7 They'd come apart, half on one side on the valve flange
8 and half on the pipe flange. And typically, what the
9 pipe now -- and I'll split this before the late 1980s and
10 after. So we're --

11 Q. Is that something you've seen?

12 A. Yeah. That's exactly what it looks like.

13 Q. Let's talk about the methods that were used at the
14 Newport News Shipyard and Norfolk Shipyard to remove
15 gaskets that were stuck from flanges prior to any kind of
16 controls being placed for the gaskets.

17 A. You had putty knife in your tool bag. You would
18 have a putty knife, you would have a pneumatic grinder
19 that turned up anywhere from 3,000 to 4,500 RPMs and
20 generally was 12" or 15" long, about 3" in diameter, and
21 you would have a wire brush. And you were trained that
22 the wire brush was to be a similar type of metal to the
23 flange you were working on. So if you had steel working
24 on a steel flange, it was okay to use a steel brush. If
25 you were working on a bronze flange, we expected you to

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1 use a bronze brush. The reason we did that was we didn't
2 want you to cross-contaminate in base metals of the
3 system.

4 So you scrape off everything you could get off by
5 hand, very similar to what we saw in the video this
6 morning. You might have to attack it with a hammer to
7 get started. Then you would scrape it off just like you
8 would old paint at your house or something. Then you put
9 on your -- hook up your air grinder, put a wire brush in
10 it and finally called a Ziz wheel by the pipefitters and
11 you would take it off. And that was the most -- the
12 quick and efficient way to take it off. Now all that
13 changed in the late '80s when we found out that we might
14 be hurting ourselves doing that.

15 Q. Okay. Let me just ask a little about those
16 pneumatic grinders. Did they have safety guards on them?

17 A. Safety guards weren't required before 1972. And
18 when OSHA was created in the early '70s, we got a bunch
19 of safety requirements there in a very short period of
20 time. For example, with side protectors on safety
21 glasses, hearing protection, metatarsus protection on
22 safety shoes and guards on grinders. The guards on
23 grinders the mechanics hated, and they hated it because
24 it got in the way of what it was that they were trying to
25 grind. So they would routinely take the guards off and

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1 grind away. Now they'd get disciplined for it, called
2 down for it. But in an application like this, it's very
3 difficult to get that off there if you've got a guard on
4 a grinder.

5 Q. Did the workers that you saw typically use the
6 safety guards, or did they just have them in their tool
7 kit?

8 A. Well, when I was a superintendent they would
9 frantically be trying to put them back on their grinder
10 when I showed up. But they were generally in their tool
11 bag.

12 Q. Have you seen the videotapes of Dr. Longo which
13 show the removal of asbestos gaskets with both hand wire
14 brushes and power tools?

15 A. I have.

16 Q. And are the tools and work methods in the
17 videotapes that Dr. Longo showed the Court this morning
18 substantially similar to the ways gaskets were removed in
19 your experience as the Newport News Shipyard and Norfolk
20 Naval Shipyard?

21 A. Yes. The major difference is we use pneumatic
22 tools instead of electric tools. But that wasn't with
23 any issue with the RPMs. It was -- we didn't like the
24 electric tools on the ship because of the shock and fire
25 hazard. The other main difference in Dr. Longo's videos,

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1 if you notice, the mechanic is holding the piece of pipe
2 just like he's holding his right hand there, and he's
3 trying to grind it while he's holding it. If you think
4 about it, aboard ship his pipes were installed and he
5 didn't have to hold the pipe. His pipe was in a
6 stationary position. Same thing in a shop. He would
7 have the pipe in a vice or grip.

8 Q. He didn't have to stabilize it?

9 A. He didn't have to stabilize it.

10 Q. The Newport News Shipyard and Norfolk -- I'm going
11 to show you the video that Dr. Longo identified this
12 morning that showed side-by-side on one hand the gasket
13 removal video done by Garlock's expert, Mr. Mangold, and
14 another of Dr. Longo's videos and ask you some questions
15 about it. Cam, if we can play that video, please.

16 (Video begins playing at 4:50 p.m.)

17 Q. You've seen this before?

18 A. I have. Yes.

19 Q. And you understand that on the left -- this is
20 Mr. Mangold on the right and this is Dr. Longo's
21 demonstration?

22 A. Right.

23 Q. First of all, in your experience, which gasket and
24 the flange after the gasket was -- after the flange was
25 taken apart, which one looked more like what you saw on a

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1 regular basis?

2 A. Well the one on the right is what you saw on a
3 regular basis. I would suspect the one on the left came
4 off of low pressure, a low tech temperature system. I
5 believe that's the one that came off the USS Gypsy, which
6 was a 35-pound hotel steam system, and that's why the
7 valve that gasket isn't stuck. Because I believe that
8 the reason they stick is a function of the temperature
9 and the pressure and the time in the particular system.
10 So if you had, for example, a 35-pound steam system -- I
11 could look it up in my steam book, but it is about 100
12 degrees lower pressure than you would see in a 150- or
13 300-pound steam system. So I think temperature and
14 pressure has a lot to do with whether they stick or not.

15 Q. You mentioned your steam book. Did you bring that
16 with you?

17 A. I did, indeed.

18 Q. Do you carry it everywhere you go?

19 A. Well, it don't get very far away from me.

20 Q. Could you continue with the videotape?

21 Mr. Shoemaker, on the right you see the pipe of
22 the steamfitter taking a chisel to start the process of
23 getting the gasket residue off the flange?

24 A. Yeah. That's a putty knife. That's not a chisel.

25 Q. Excuse me, a putty knife. Is that something that

Redirect - Shoemaker

1 was substantially similar to the methods you saw people
2 use trying to remove gaskets from flanges at the
3 shipyard?

4 A. The reason I react to chisel is because a chisel,
5 you'd see people try to pop it off with a screwdriver or
6 even a chisel and that's how you damage a flange, when
7 you use something like that. The putty knife, generally,
8 would not damage a steel flange. Now, could you damage
9 one? If you worked at it hard enough, you could damage
10 it, or it might already be damaged by the time you take
11 it apart. Because the idea was you're probably trying to
12 fix something that was already leaking. But that was
13 pretty common.

14 Q. What's going on over here on the left?

15 A. It looks like that that gasket has come off in one
16 piece. And that would occasionally happen on low
17 pressure, low temperature gasket.

18 Q. Was that something that you would typically
19 experience with a sheet gasket or --

20 A. I wouldn't say it was typical. I would say less
21 than ten percent of the time that would happen.

22 Q. Okay. On the right, the pipefitter has picked up
23 a different tool to use to remove the adhered gasket
24 material from a flange. Can you describe that --

25 A. It looks like he's got a hand wire brush and he's

Redirect - Shoemaker

1 removing the gasket residue from the flange.

2 Q. Could you back up just a minute? Back it up to
3 the beginning just a little bit backwards, Cam, where the
4 steamfitter is taking the putty knife to -- back a little
5 bit more. Back. You see the worker there is taking the
6 putty knife and jamming it into the flange to remove the
7 adhered gasket material? Is that something --

8 A. I'd prefer he not do that. I'd prefer he find a
9 place to try to lift it off. But he's not going to hurt
10 the flange doing that. He's hitting the gasket, not the
11 flange. He's trying to get a place where he can lift it
12 off is what he's doing. Now if I ran into him shipboard
13 doing that, I might say hey, mate. What's going on here?
14 Can't you get under that thing and lift it off? And we
15 occasionally did damage flanges.

16 Now if you think about what do you do when you
17 damage a carbon steel flange? It's not the end of the
18 world. You would repair it. You repair the phonographic
19 finish on it. It's a little tougher on the bronze
20 flange. In that case, you might put a bigger, softer
21 gasket in it if you want to keep it from leaking. But
22 just because you damaged your flange face didn't mean you
23 lost the component or lost the whole battle here. But it
24 wasn't typical to damage it doing that. It was more
25 typical to find them steam cut or the fact they'd been

Redirect - Shoemaker

1 damaged because something had hit them or something like
2 that. You're more apt to damage them taking the valve in
3 and out than you were doing that.

4 Q. And you've watched all of Dr. Longo's work
5 simulation videos involving gaskets?

6 A. I have.

7 Q. And in general, Mr. Shoemaker, are the methods
8 and work practices used by the steamfitter in getting
9 gaskets, especially sheet gaskets off of flanges shown in
10 those videos, consistent with your experience in the
11 Norfolk Naval Shipyard and Newport News Shipyard?

12 A. They are.

13 Q. I want to turn briefly to thermal insulation and
14 then I'll talk a little bit about controls. First, on
15 thermal insulation. From your job experience, did you
16 obtain knowledge of the various applications for which
17 the Navy required or permitted asbestos insulation
18 products to be used?

19 A. Yes.

20 Q. And what, generally, were those applications?

21 A. Well, the insulation on piping and components was
22 the major place that you had it. You also had it in
23 gaskets. You had it somewhat in deck tile. But my big
24 application with thermal insulation was on piping
25 systems.

Redirect - Shoemaker

1 Q. At some point in your career did the Navy begin
2 allowing substitutes for Amosite in pipe covering
3 insulation?

4 A. Yes. That was in the mid-1960s we started seeing
5 fiberglass substitution. We were -- actually, the Nimitz
6 was the first ship where we ended up with both fiberglass
7 and asbestos insulation on a ship.

8 Q. At some point in your career did the Navy phase
9 out the use of asbestos-containing thermal insulation
10 entirely?

11 A. Yes, and I think that was in the '70s.

12 Q. And did that changeover in your experience happen
13 when they were working on the Nimitz?

14 A. Yes. The Nimitz was -- like I say, we had bought
15 the insulation, the asbestos insulation, for the Nimitz,
16 and the orders were to use it up before we ordered any
17 fiberglass insulation.

18 Q. Okay. During the overhaul phase of the life of a
19 Navy ship, what trades typically installed or removed
20 thermal insulation during the overhaul?

21 A. At Norfolk Naval Shipyard they're called the
22 insulators, the pipe insulators. They're called the pipe
23 coverers at Newport News Shipyard. But they're a trade
24 in a shop that are dedicated to removing and installing
25 pipe and thermal insulation. Now, you've also got a

Redirect - Shoemaker

1 trade that installs bulkhead insulation which, generally,
2 is fiberglass. They are in a different shop. They're
3 generally in the joiner shop. But the piping systems and
4 the components are insulated by the insulators at Norfolk
5 Naval Shipyard.

6 Q. When would any other trades remove asbestos
7 insulation?

8 A. Well the pipefitters would do it if they got
9 impatient waiting for the insulators to come down to do
10 it. But there were two issues with that. One, after
11 asbestos controls went in place you had to be
12 specifically qualified to remove asbestos insulation, and
13 that was limited to the insulators. But many other
14 trades were in contact, but removal of it was primarily
15 the insulators. I'm sure in depositions you will hear
16 pipefitters and outside machinists tell you they removed
17 it.

18 Q. And can you describe, just generally, for the
19 Court the various types of asbestos insulation that were
20 on and around equipment on Navy ships during the time you
21 were at the Newport News Shipyard or the Norfolk Naval
22 Shipyard?

23 A. You had on piping the piping runs themselves. You
24 can think of it much like piping that might insulate your
25 heating or cooling system in your house. You had two

Redirect - Shoemaker

1 half round sections of insulation that would be wired on.
2 Then it would be -- mud would be mixed up and put in the
3 cracks and the joints.

4 Q. By "mud" you're talking about asbestos-insulated
5 cement?

6 A. Right. That's mixed and put on much like cement
7 and. Then a lagging, which is a canvas covering, would
8 go over top of that. And there were different
9 thicknesses, depending on the heat load of the pipe.
10 Then you would get around the components and the valves
11 and you would have what we call an insulation pad, which
12 was a portable pad that would be made -- usually made up
13 in the shop. It might have been in the early days was
14 made out of an asbestos blanket. Later on it was
15 fiberglass. And that would be wired on. And I think you
16 see one right there up on that bypass line that looks
17 like it's wired on.

18 Q. Could you come down here and just use my Power
19 Point clicker and just show the Court where in this
20 drawing you see the portable pads? May he come down,
21 Your Honor?

22 THE COURT: Yes. Oh, yes.

23 BY MR. FINCH:

24 Q. There's a microphone there. You have a loud
25 voice, but I think for the court reporter to pick you up

Redirect - Shoemaker

1 you have to use that.

2 A. Can you hear me?

3 Q. So the red dot shoots the laser pointer.

4 A. Right here. That looks like it might be a
5 portable pad. It looks like a portable pad up here.

6 There's definitely one right -- oh.

7 Q. Back up. You clicked it.

8 A. I'm technology challenged right there. That's a
9 portable pad. That's a portable pad. There's one to the
10 left. There is a portable pad. You can see that wire
11 that's attached to the grommets. What the insulators do,
12 they come along with a pair of snippers and snip it off.
13 And the reason we wanted the insulators to do that is if
14 the pipefitters or machinists did it, they would be
15 inclined to throw it in the bilge, where the insulators
16 had a vested interest to not make a new one. So they'd
17 bag it and tag it and reuse it.

18 Q. Was it your experience at the Norfolk Naval
19 Shipyard and Newport News Shipyard that the type of
20 insulation that was typically found on or around
21 equipment like valves and pumps was these portable pads?

22 A. Yes, particularly where you had flange valves and
23 pumps. And the reason for that is because you wanted to
24 get at that flange if you had a leak. If you had to take
25 that piece of equipment out now, you might see permanent

Redirect - Shoemaker

1 insulation around a valve that was welded in, a welded
2 valve. But these are mechanical valves that come out.

3 Q. Were hammers typically used to remove pipe
4 insulation from a pipe during the shipyard overhauls in
5 your experience?

6 A. I never saw it. You heard stories about it that
7 it went on during the war and after the war, but I never
8 saw it in my experience.

9 Q. Have you reviewed the videotape of Fred Boelter,
10 Garlock's expert, where he uses a hammer to remove
11 asbestos insulation from a pipe?

12 A. I have.

13 Q. Are the tools and work methods that Mr. Boelter
14 used in that demonstration substantially the same as the
15 work methods and tools used by pipefitters and machinists
16 to remove insulation at the shipyard during your
17 experience?

18 A. No.

19 Q. During your experience at the shipyard?

20 A. No. The video of Mr. Boelter there knocking the
21 stuff off with the hammer. What we would do is go in,
22 either with a hand saw or one of these air grinders, cut
23 down to about within a half or quarter inch of the pipe
24 and then cut it out with a linoleum knife, because you
25 didn't want mechanics beating on components with a

Redirect - Shoemaker

1 hammer.

2 Q. You can have a seat, Mr. Shoemaker. We're in the
3 bottom of the eighth inning at least for my questions.

4 There's been discussion about the controls
5 relating to thermal insulation and testimony that that
6 first started in the early to mid '70s in the shipyard.
7 Could you describe the work methods and controls that
8 were used by shipyard workers to control asbestos
9 exposures from thermal insulation when that first
10 started?

11 A. You're talking about after the asbestos controls.

12 Q. After the asbestos controls for thermal insulation
13 first came into place.

14 A. What we would do during this rip out period, we
15 would go out and we would take a sample to see if the
16 insulation were indeed asbestos. If it was, we would
17 rope off or tape off the area. And the insulators were
18 specifically qualified and had health physicals. They
19 were the only ones allowed to go down to do that. So
20 they would suit up, generally, in Tyvek coveralls and a
21 respirator, and they would go down and, generally, with
22 knives or hand saw and try to -- and cut the insulation
23 and remove it by hand and bag it up in red bags and
24 dispose of it. Then they would wipe the pipe down to get
25 the dust and the dirt, and they would clean up whatever

Redirect - Shoemaker

1 dust or dirt they generated. One of the first things
2 they do is put down a drop cloth so that as they took it
3 out off it wouldn't get down in the bilge and get in the
4 crevices of the machinery. So they captured what was
5 coming off in terms of dust as they cut it off.

6 Q. Now, when did control -- any kind of controls for
7 gaskets for first come into place?

8 A. That was not until the mid to late '80s when it
9 happened in Norfolk.

10 Q. All right. And it was your job to help the
11 pipefitters and other workers figure out how they could
12 meet the new requirements to limit the dust from gasket
13 removal work?

14 A. We actually had -- in the pipe shop we had 59
15 different processes, and they were all written down. So
16 we actually wrote down a process and then set up a
17 mock-up of how to do that to make sure that we were
18 removing it without getting the stuff airborne. So the
19 first thing we did was did away with the grinders. You
20 couldn't use any pneumatic grinders to clean it up. You
21 had to use a hand wire brush, and you had to have -- you
22 had to have an asbestos physical. You had to be
23 respirator qualified. You had to -- you had to shave
24 your beard and put on a respirator. And then you would
25 go down with your hand wire brush and water bottle, it

Redirect - Shoemaker

1 looked like a Windex bottle or Clorox bottle with water,
2 and it had some kind of agent in it. And you would
3 squirt that on there before you brushed it so the stuff
4 wouldn't get airborne. That's how we did it.

5 Q. Exhibit -- what's in front of you is what's been
6 marked as ACC-5063B. It's also a Garlock exhibit
7 GST-1558. Can you identify that document, sir?

8 A. Yes. That's the Norfolk Naval Shipyard
9 Occupational and Safety Health Manual. There was a major
10 revision that came out in 1991.

11 Q. This is something that you were familiar with;
12 correct?

13 A. Yes.

14 Q. And there's a page 9-19 that has the controls for
15 gasket material and manufacturing operations. And number
16 12 -- what does number 12 say when we get it back up on
17 the screen?

18 A. I believe that you're referring to the statement
19 that says don't use power-driven equipment to remove the
20 gasket residue.

21 Q. And it says wet the gasket down prior to using a
22 scraper to remove the gasket residue, dispose of remains
23 of gaskets asbestos waste?

24 A. Yeah. That was the red bag I'm talking about.

25 Q. Is that the procedures you had to implement in

Redirect - Shoemaker

1 order to get the asbestos fiber levels down below what
2 the new requirements were?

3 A. Right. And that wasn't -- you know, we had been
4 controlling radioactive contamination like that for
5 years. Very similar. You didn't want radioactive dust
6 in the air. So this was -- we knew how to do this.

7 Q. Your Honor, at this time I would offer into
8 evidence Mr. Shoemaker's CV, which is ACC-3781, his list
9 of ships which is ACC-5063A. I would offer for
10 demonstrative purposes and Rule 104 purposes only his
11 report, which is ACC-3783. The Power Point that we used
12 today, I'll make a printout for Your Honor and that will
13 be for demonstrative purposes as well ACC-3785. And then
14 finally, for substantive purposes, the Occupational
15 Safety and Health regulations from the Department of the
16 Navy Norfolk Navy Shipyard 1991 which has been marked as
17 ACC-5063B. It's also on Garlock's exhibit list as 15518.

18 MR. HARRIS: No objection, Your Honor.

19 THE COURT: We'll admit all of those.

20 BY MR. FINCH:

21 Q. With that we will pass -- my brains back there
22 reminded me one final question. Was using a power wire
23 brush on flanges standard procedure at the Norfolk Naval
24 Shipyard?

25 A. Yes.

Redirect - Shoemaker

1 Q. And was that something that was going to damage
2 the flanges in your opinion?

3 A. No. And the requirement was you used the metal
4 wire brush of similar metal to the -- what you were
5 brushing. And the reason is so you didn't cross-
6 contaminate the pipe or the flange, because that's where
7 you would get chloride stress corrosion if you had a
8 contaminate on it.

9 Q. No further questions from me at the time, Your
10 Honor.

11 THE COURT: All right. Mr. Guy.

12 **CROSS-EXAMINATION**

13 BY MR. GUY:

14 Q. Mr. Shoemaker, my name is Jonathan Guy.

15 A. Yes, sir.

16 Q. I represent the future claimants representative
17 Mr. Joe Grier. Our job is to look out for the people
18 who may have claims in the future. They're not sick yet,
19 but they may get sick yet. They may get sick. And
20 you're aware that Mesothelioma has a long dormancy
21 period; correct?

22 A. Yes, sir, I am.

23 Q. I want to say from the outset you're a good value
24 for money. If only all our experts were so reasonable.

25 I'm very interested, and I know my client is going

Cross - Shoemaker

1 to be very interested in the window where, from you
2 reexperience, machinists and pipefitters would have been
3 exposed to asbestos from gaskets because there were no
4 precautionary measures in place but not exposed to
5 asbestos in insulation. Can you help us and the Court
6 understand that window?

7 A. Yeah. My guess, if I had to draw a time bracket
8 around that, it would be from 1978 to 1989 or '80.

9 Q. And what happened in 1989 that the Navy suddenly
10 acknowledged that there was a problem associated with
11 asbestos containing gaskets?

12 A. I think, perhaps, two things. I think we were
13 starting to see people get sick that had been our
14 colleagues in the shipyards, the parents of people who
15 were working in the yard. So we were seeing people get
16 sick. We were not unaware of the asbestos litigation
17 that was going on. A lot of folks were coming in with
18 asbestosis. They might not have had mesothelioma at that
19 point. So we were aware that was happening and people
20 were really getting sick. What we were not aware of is
21 that we could get sick from gaskets. That was a surprise
22 to us. But if you look at the airborne sample
23 requirements that OSHA put out, I think they started off
24 about 1972 at about --

25 MR. HARRIS: Objection. Your Honor, this is

Cross - Shoemaker

1 outside of his area of expertise and what he's been
2 offered for.

3 THE COURT: Sustained.

4 BY MR. GUY:

5 Q. Mr. Shoemaker, do you have any experience around
6 commercial ships?

7 A. No. My experience is Navy ships.

8 Q. Do you have any reason to believe that the issues
9 surrounding gaskets and insulation would be very
10 different for commercial ships?

11 A. No, but I'm not an expert on commercial ships.

12 Q. And did you have any expertise or experience
13 around non-nuclear ships?

14 A. Yes.

15 Q. Same question. Do you have any reason to believe
16 one way or the other that the treatment of gaskets and
17 insulation would be very different for non-nuclear?

18 A. No. Non-nuclear ships were what I just described
19 the same as nuclear ships.

20 Q. No further questions, Your Honor.

21 THE COURT: Thank you. All right. Mr. Harris.

22 **RECROSS EXAMINATION**

23 BY MR. HARRIS:

24 Q. Good afternoon again, Mr. Shoemaker.

25 A. Good afternoon, Mr. Shoemaker.

Recross - Shoemaker

1 Q. I'd like to probably first start with your the
2 time line of your employment.

3 A. Okay.

4 Q. So you started at the Newport News Shipyard in the
5 early 1960s?

6 A. 1961. Yes, sir.

7 Q. You started as a helper in the sheet metal
8 department?

9 A. Actually, I started as a helper five days out of
10 high school in the welder's department pulling cable.

11 Q. In the Welding Department. And at that point you
12 were working on new construction?

13 A. New construction. Yes, sir.

14 Q. And were they constructing nuclear carriers?

15 A. I was working on the USS Enterprise which was in
16 the final stages of new construction.

17 Q. And then in the -- later in the 1960s, you're
18 still involved in new construction; is that correct?

19 A. Yes, sir. I was primarily involved in new
20 construction during my entire time at Newport News, from
21 1961 to 1977.

22 Q. And that's the experiences that you've related to
23 the Court is your experience with respect to nuclear
24 carriers or nuclear ships during that time period;
25 correct?

Recross - Shoemaker

1 A. During that time period yes, sir, nuclear ships.
2 I did a little bit of work on the Kennedy and on the
3 America, but it was primarily nuclear ships.

4 Q. And then there -- you didn't see any -- any
5 controls for asbestos insulation until the late 1970s; is
6 that correct?

7 A. That's correct. I didn't see that at Newport
8 News. I didn't see that until I went to Norfolk.

9 Q. So you never saw it at Newport News. And then in
10 the late '70s at Norfolk you saw some controls being
11 instituted there; correct?

12 A. They were pretty significant controls. It was a
13 big deal for the shipyard. But yes, sir, that was 1978.

14 Q. Then in the 1980s you had some experience at
15 Norfolk Shipyard with some ships that had been built
16 before 1960; correct?

17 A. Yes.

18 Q. But before that, before the 1980s, you really
19 hadn't had any experience with ships that were built
20 before 1960. Correct?

21 A. Well, I think that's correct. Yes.

22 Q. And so you know from the insulation practices and
23 how those ships that were built in the 1940s and 1950s
24 and how they were overhauled in the 1960s and the early
25 '70s. You don't have any -- you don't have personal

Recross - Shoemaker

1 observations of how that was done; correct?

2 A. That's correct.

3 Q. And you haven't done any research on that either;
4 correct?

5 A. That's correct.

6 Q. Now, I understand you were the Superintendent of
7 the pipefitters in the late 1980s at Norfolk?

8 A. That's correct.

9 Q. And the 1990s. But you were not a pipefitter;
10 correct?

11 A. No. I gained my pipefitting expertise through the
12 design department when I was at Newport News and
13 primarily through the Trouble Desk where I was
14 researching, basically, piping problems during the
15 construction of Nimitz and Eisenhower. But I never
16 worked as a pipefitter or pipefitter's helper.

17 Q. I believe you told us in your deposition that you
18 didn't feel that you had acquired expertise with respect
19 to gaskets until 1988; is that right?

20 A. That's true. Yeah.

21 Q. Okay. So the ships that you did have contact with
22 that were built before 1960, that was in the 1980s, those
23 would likely have been overhauled many times before you
24 saw them. Correct?

25 A. That's correct.

Recross - Shoemaker

1 Q. All right.

2 A. The battleships were kind of interesting. The two
3 battleships were put in service right at the end of the
4 war. They were taken out of service and put back in
5 service for Korea, taken out -- out of service, back in
6 service in the '80s. They had not been overhauled for
7 every two years like I described the Coral Sea, because
8 they had probably spent half their life out of service by
9 the time we saw them. So they looked a look lot like
10 they were in the '40s.

11 Q. You saw him them in the '80s?

12 A. I saw them in the '80s.

13 Q. You saw the BuShips? The technical manual?

14 A. Correct.

15 Q. It's updated throughout the years?

16 A. Yes.

17 Q. That's an important document; correct?

18 A. You're taking about 777.

19 Q. I'm talking about the BuShips technical manual.

20 Are you familiar with that manual?

21 A. There's many, many technical manuals.

22 Q. There's chapters?

23 A. Yes, I'm familiar with it. But there's many that
24 apply to everything the Navy does.

25 Q. Right. But that's an important document for those

Recross - Shoemaker

1 people that are working on ships.

2 A. Absolutely.

3 Q. And there's a chapter on insulation that describes
4 how that work should be done; correct?

5 A. Yes.

6 Q. All right. I've displayed the chapter with
7 respect to insulation from the mid-1960s. We talked
8 about it at your deposition.

9 A. Yes, sir.

10 Q. It has drawings in there about how certain
11 fittings are going to be or should be insulated; correct?

12 A. That's correct.

13 Q. They describe hard insulation on flanges; right?

14 A. They do.

15 Q. And they describe portable pads; correct?

16 A. They do yeah.

17 Q. They talk about pads and then the void spaces
18 where the pads are put on being filled with loose --
19 "fill the void spaces with loose Amosite." You've seen
20 that; correct?

21 A. I've seen that spec. I've never seen that in
22 steel on ships. I've never seen a void filled with loose
23 Amosite.

24 Q. That's not something you necessarily would have
25 seen back when you were involved in new construction;

Recross - Shoemaker

1 right?

2 A. Correct. That's correct.

3 Q. All right. You don't doubt that some people in
4 the Navy were paying attention to the BuShips technical
5 manual, weren't they?

6 A. I'm sure they were.

7 Q. Okay. Let's talk about removing gaskets. You
8 agree that the first thing that someone would try to do
9 is they would try to remove the gasket with a scraper;
10 correct?

11 A. Yes, sir.

12 Q. That's where the bulk of the gasket material is
13 going to be removed; right?

14 A. Yes, sir.

15 Q. And someone that really knows what they're doing
16 and wants to remove the gasket is going to try to get up
17 underneath the gasket, right, and try to remove the
18 gasket?

19 A. Yes, sir.

20 Q. And when you do that you can remove the gasket
21 often with big pieces or one big piece; correct?

22 A. Well, in my experience it would come off in
23 pieces, you know, that big. Rarely would the whole
24 gasket come off. But, yes, you could remove it off in
25 big pieces. Then you would end up, well, like the

Recross - Shoemaker

1 photograph we saw there with the little hairy looking
2 stuff all over it.

3 Q. Your experience is when you remove those big
4 pieces, you can actually still see the name that was
5 stamped on the gasket?

6 A. Yes. Or at least part of the name. Yeah.

7 Q. Right. And that part's not adhering to the --
8 adhering to the flange; right?

9 A. That's correct.

10 Q. Otherwise, you wouldn't be able to read it?

11 A. You wouldn't see it. That's right.

12 Q. You can see that certainly on salt water lines,
13 the gaskets can come right off.

14 A. Yeah. Well, like I said, about ten percent would
15 come off. Yeah.

16 Q. Just ten percent of the gaskets?

17 A. That's my guess. Yeah, ten percent.

18 Q. It's a guess, though; right?

19 A. I haven't sat down and counted it. But if I had
20 to tell you what it was, it's ten percent.

21 Q. You talked about if any residue's left that they
22 would use a hand wire brush or a pneumatic tool in your
23 experience; correct?

24 A. Yeah. And that was a procedural break point in
25 the late '80s. Up until then, the preferred method was

Recross - Shoemaker

1 pneumatic wire brush.

2 Q. After the scraper?

3 A. After the scraper.

4 Q. For cleaning up the flange face.

5 A. Yes.

6 Q. Not for removing the gasket.

7 A. No. No. The scraper was the first thing you
8 would do to get the big pieces off.

9 Q. Right. And all you're doing then is cleaning up
10 the residue on the flange face?

11 A. That's right.

12 Q. With the pneumatic brush?

13 A. That's correct.

14 Q. And the ones you used in your shipyard were not
15 11,000 RPM electric grinders; correct?

16 A. No. The ones I was familiar with were generally
17 3,000 to 4,500, and I'm talking about in the '60s now.

18 Q. Were lots of sparks happening when your
19 pipefitters were removing gaskets?

20 A. You would see occasional sparks on a steel valve
21 and a seal. But generally, it was from the hub of the
22 brush hitting something on the valve is where you would
23 -- if the grinder got away from you, you would get it.
24 Now you would also, you know, there were also sometimes
25 residue. There would be rust particles or something on

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Recross - Shoemaker

1 the face of the flange that would come off as sparks.
2 You could see that happen occasionally. But, yes, you
3 would see that.

4 Q. There's rust on the flange faces; right?

5 A. Yes.

6 Q. And that comes off when you're using a wire brush
7 on it; right?

8 A. Yes.

9 Q. And it gets into the air?

10 A. Yes.

11 Q. I believe you told us at your deposition a little
12 more than half of the gaskets you see in Engine Room are
13 going to be spiral wound gaskets, not compressed sheet?

14 A. Yeah. It's about half. Again, I've never counted
15 that. But on the 600-pound systems and on the bigger
16 valves, they're going to be Flexitallic gaskets.

17 Q. I believe you also told us in the -- in your
18 deposition that gasket -- that pipefitters might remove
19 or replace 250, 300 gaskets a year?

20 A. That's correct. Yeah. An individual pipefitter
21 with a helper.

22 Q. Right. That's all gaskets that's spiral wound?

23 A. Right.

24 Q. Compressed sheet rubber?

25 A. Right. Whatever he happened to be working on.

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1 Q. Whatever he happens to be working on. The
2 pipefitters also had another reason for carrying around
3 the grinder. Removing gaskets wasn't the primary reason
4 they were carrying grinders around; right?

5 A. Right. You use a grinder to cut stuff.

6 Q. Right. I believe you described cutting insulation
7 with a rotary blade or the end of a grinder, is that it?

8 A. Yes. And in fact, there's -- I believe there's a
9 picture in the Puget Sound industrial hygienist of that
10 being done. But, yes, that was pretty typical. Shipyard
11 folks, everybody had a grinder in their tool bag. And
12 they would put little thin wheels on them. And rather
13 than use a hacksaw or something like that, that's what we
14 used to cut stuff.

15 Q. It's not a typical work practice at the Newport
16 News Shipyard to use tools above their safety rating;
17 correct?

18 A. True. That's true. Not just Newport News.
19 Anywhere.

20 Q. What's that?

21 A. In Norfolk, too.

22 Q. Norfolk, too?

23 A. Yeah. You don't want to hurt yourself by doing
24 something you don't want to do.

25 Q. All right. And you're not here to testify that

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1 all the pipefitters at Norfolk Shipyard and Newport News
2 are taking their safety guards off their grinders, are
3 you?

4 A. No.

5 Q. You saw -- did they show you Dr. Longo hammering
6 out the gasket on the flange --

7 A. Yes, sir, I've seen that.

8 Q. -- gasket fabrication?

9 A. Yes.

10 Q. He hammered out four in a row. But you describe
11 that practice as, you know, maybe they do it once or
12 twice, but they're not going to do four gaskets in a row,
13 are they?

14 A. I wouldn't expect to see that in a production
15 environment. No.

16 Q. And then what they're doing is they're tapping out
17 the outline of the gasket and then taking sheers or a
18 knife to cut out the gasket; correct?

19 A. That's correct.

20 Q. They're not trying to cut the whole gasket out by
21 hammering on it until it is forced apart by the edge of
22 the flange.

23 A. No. The edge of the flange -- you're right. They
24 would be tapping it to get a line to cut with shears or a
25 knife, the water way bore and the bolt holes. They

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1 probably wouldn't be tapping it out completely and
2 cleaning it up with a knife.

3 Q. At our deposition, you were explaining to us about
4 the rip out phase of overhauls. That's the first phase?

5 A. Yes, sir.

6 Q. And that's where they -- the shipyard workers and,
7 I guess, the sailors, too, are on board ripping out all
8 the equipment that's going to be in service during the
9 overhaul; is that correct?

10 A. That's correct. Normally, it's the shipyard
11 workers that are physically taking it out. The sailors'
12 responsibility is to see that the systems are tagged out
13 safely and that their portable equipment and stuff is
14 getting out of the way of the stuff they might have
15 stored in a space.

16 Q. During this phase, all the trades and the -- all
17 the shipyard personnel and sailors are on board at the
18 same time?

19 A. Yes, sir.

20 Q. The sailors are watching what the shipyard's
21 doing?

22 A. Yes, sir.

23 Q. During this rip out phase, this is when,
24 historically, the insulation would be ripped out from the
25 lines and the equipment and the valves that were going to

Recross - Shoemaker

1 be in service; is that correct?

2 A. Correct.

3 Q. And they're all standing right next to each other;
4 correct?

5 A. Well up until the time we had controls, yes,
6 that's correct. Up until '78, and then we had the
7 controls I mentioned. And if it was asbestos, we roped
8 the area off so the only people in there were the
9 insulators.

10 Q. Right. So before 1978, though, the pipefitters,
11 the boilermakers, the insulators, they're all on board
12 doing their job. Correct?

13 A. That's correct.

14 Q. And the insulators are not just removing pads from
15 valves and such, they're also removing insulation from
16 pipes; correct?

17 A. That's correct.

18 Q. They're ripping out the insulation; correct?

19 A. That's correct.

20 Q. And everyone's all in the same spaces. There
21 aren't big hallways on ships or anything. These are
22 tight machinery spaces; correct?

23 A. Well, the Engine Room on an aircraft carrier is
24 about the size of this courtroom. It's got machinery and
25 stuff in it, but it carries a big ship. But, yeah.

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1 Q. Okay. But we're still talking about tight spaces.
2 And the ventilation is not great; correct?

3 A. That's true.

4 Q. And the pipefitter's doing his job while the
5 insulator's working above him ripping out insulation;
6 right?

7 A. That's true.

8 Q. Now are you saying, though, that you didn't think
9 that the pipefitters were ever removing the insulation to
10 get to the valves?

11 A. Well, I wouldn't say absolutely never. It was not
12 their assigned task. It was the insulators that were
13 supposed to do that. Now, did the pipefitters do it?
14 Yeah, particularly if they were getting impatient wanting
15 to get started on their job.

16 Q. I want to talk to you about that. I mentioned to
17 you at your deposition that there are people who worked
18 in the shipyards who have worked in your shipyard and
19 they've did been deposed, and they described the work
20 practices they engaged in. Do you understand that?

21 A. Yeah.

22 Q. I want to show you one of the depositions. This
23 is from David Durham. He was from your shipyard, the
24 Norfolk Naval Shipyard. He worked there from 1942 to
25 1975. That's before your time; correct?

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1 A. That's right. I arrived in Norfolk in '77.

2 Q. That was before you would have -- before any
3 controls were in place; correct?

4 A. That is true.

5 Q. And he actually worked as a pipe coverer trainee,
6 and then he was a pipe coverer and mechanic -- worked as
7 a mechanic until '64; an instructor until he left the
8 shipyard. But he was right there in the 1950s and the
9 1960s when they were doing work, doing overhauls, there
10 at that shipyard. Correct?

11 A. That's correct.

12 Q. He said -- was asked about asbestos bloc
13 insulation.

14 "Did the customary use of that aboard ships over
15 the years create dust?"

16 "Yes."

17 "What kind of activities would create dust?"

18 "Well, the same things as using sections when you
19 was removing it and sawing it with the different
20 type of saw. One thing about it, it was like
21 these pipefitters and boilermakers and all, they
22 would rip out material. An awful lot of times
23 they made more dust sometimes than we did because
24 they beat it off with a hammer or paint scraper or
25 something like that, where most of the time we

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1 would saw it off or take it off. It wasn't
2 quite as dusty the way we did it, but it was dusty
3 -- plenty dusty all the time."

4 A. I don't doubt he's exactly right.

5 Q. You heard stories about it?

6 A. I heard stories about it. Two things changed. It
7 wasn't so much in the early '70s to worry about
8 insulation. But Norfolk didn't start working on nuclear
9 ships until the late '60s. And what happened was Admiral
10 Rickover took very strict controls of the trade processes
11 at that time. Beating on pipes and components with a
12 hammer was just something you didn't do. And the reason
13 you didn't do it is if you happened to miss the
14 insulation and you hit the pipe, the outside damage of
15 the pipe is where the high stress risers occur on the
16 pipe. You get a discontinuity on that pipe and the pipe
17 would fail. So we were changing work practices to be
18 more disciplined during that period. I don't doubt that
19 Mr. Durham was correct.

20 Q. You mentioned Admiral Rickover. He was associated
21 with the nuclear Navy; correct?

22 A. He was the nuclear Navy.

23 Q. That's what I was maybe trying to get at
24 inartfully earlier. The procedures with the nuclear Navy
25 are a little different than with the rest of the Navy

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1 historically.

2 A. What happened -- yes is the answer to that, but it
3 was a gradual change. And actually, that's why people
4 like me ended up running the production department at
5 Norfolk, because naval reactors was determined that
6 people with nuclear experience were going to run the
7 shipyard and nuclear war practices were going to be
8 applied to the ship. Nuclear war practices generally
9 being -- applying more input and more thought about, why
10 do we do what we do the way we do it? Not only for
11 personnel protection, but so we were doing the technical
12 right thing for the ship. So, yes, that's been a change
13 over the 50 years of the nuclear program.

14 Q. It was changing in the late '60s and early '70s?

15 A. Yes. It was starting at that time and really
16 didn't -- that change didn't take root at Norfolk until
17 the late '70s.

18 Q. There's another gentleman, a Mr. Overstreet.
19 Now, he worked tat ADDSCO Shipyard, and he testified
20 about this. He worked there in 1969 until they closed,
21 up until 1988. He was a pipefitter's helper at ADDSCO
22 and then went on to become a full-fledged pipefitter
23 first class.

24 A. I've never heard of ADDSCO. Are you sure that's
25 not NASSCO?.

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1 Q. I think that's ADDSCO?

2 A. That could be. I've never heard of it. I thought
3 I heard of it all of them.

4 Q. So he was asked about his job.

5 "Did you have a specialty that you worked on? Any
6 particular sort of piping or any particular part
7 of the ship?"

8 "No, sir. We worked on steam lines, water lines.
9 It was mostly steam lines in the boiler rooms
10 where they put us."

11 "Is that considered a harder job than fitting
12 water lines?"

13 "Yes, sir. When the ship would come in it would
14 be hot and the boiler room would still be warm.
15 And when we got in there, we'd take a hammer, you
16 know, the hanger. And they was in a hurry and
17 wanted the job done. So we beat the insulation,
18 asbestos insulation, off of it and it would fly
19 everywhere."

20 That's completely consistent with the stories you
21 heard when you got to Norfolk, and even at Newport News?

22 A. I have heard those stories. Yes.

23 Q. You don't doubt that he was being truthful. He
24 says, "And the insulator was there, you know, and he'd
25 say go ahead and knock it loose. And we'd say,

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1 just take the hammer and beat? And we'd have what
2 they call a hanger to hold up the pipe and we'd
3 beat the insulation from around it. And I recall
4 it being hot, sweaty and all those fibers going
5 everywhere in the boiler room."

6 "Was it real dusty?"

7 "Yes, sir, it was really dusty."

8 Do you believe that?

9 A. I believe it. Yeah. I think you need to figure
10 out where ADDSCO was, though. I've never heard of an
11 ADDSCO.

12 Q. Okay. I just want to touch on, maybe, just one or
13 two things here. Your son is a law partner.

14 THE COURT: You run that off, you get NASSCO.

15 THE WITNESS: Yeah. NASSCO is in San Diego.
16 English wasn't my that I think.

17 BY MR. HARRIS:

18 Q. Your son is a law partner of Bobby Hatten, the
19 lawyer of here -- he's the one that met with you and
20 helped you prepare your report?

21 A. That's correct.

22 Q. I believe you said you wrote about 75 percent of
23 the report?

24 A. I did.

25 Q. You understand he represents plaintiffs in the

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1 asbestos personal injury litigation?

2 A. I do.

3 Q. You had said, Mr. Shoemaker, that what you saw in
4 the Longo videos was consistent with your experience, and
5 I understand you would say that. But you saw the
6 steamfitter chopping at the gasket; right?

7 A. Yes.

8 Q. That's probably something you would tell them,
9 hey, what's going on here?

10 A. Right.

11 Q. I can show you a better way.

12 A. Yes.

13 Q. You saw the use of an 11,000 RPM grinder?

14 A. Yes.

15 Q. That grinder was not consistent with your
16 experience?

17 A. No. We were at 3,500, 4,500 pneumatic grinders.

18 Q. All right. Thank you, Mr. Shoemaker.

19 A. Thank you.

20 MR. FINCH: Brief redirect, Your Honor.

21 THE COURT: Yes.

22 **REDIRECT EXAMINATION**

23 BY MR. FINCH:

24 Q. In your opinion, would the different difference
25 between a pneumatic grinder and an electric grinder

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1 matter?

2 A. No. And the reason is you're taking the same
3 volume of stuff off the face of the flange. You might
4 take it off quicker if you turn up the RPM. I don't
5 think it makes any difference.

6 Q. You were asked some questions about when
7 insulators and pipefitters and other trades would be in
8 the hull of a ship during the time when insulation would
9 be torn off the pipes of a ship. Do you recall those
10 questions from Mr. Harris?

11 A. Yes.

12 Q. During the course of an overhaul of a ship, I
13 believe you said on correct a rip-out phase is about six
14 weeks?

15 A. Yes. I'm talking about a ten-month to one year
16 overhaul.

17 Q. How much of that time was the insulation being
18 ripped off?

19 A. We'd like to get it done about two weeks. It
20 might go a little longer than that. Depending on how
21 quick the samples come out? Two to three weeks.

22 Q. How long in the overhaul process would the
23 equipment and valves and pumps and other equipment that
24 would have asbestos gaskets be being worked on?

25 A. Well, we would hope at the end of that first

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1 six-week period, and certainly by eight weeks, that we
2 had everything out that we were going to work on and up
3 to the inside shop. Then we would be making
4 modifications on the ship. And then at about the halfway
5 point to two-thirds point, the equipment's coming back,
6 it's getting re-installed. And the last third of the
7 availability, we're lighting systems off, putting steam
8 in the ship, bringing it to life and doing testing.

9 Q. That would be a period --

10 A. About six months.

11 Q. Six months?

12 A. Yeah.

13 Q. When, during the process, would pipefitters and
14 other trades be doing the majority of their work
15 replacing gaskets?

16 A. It would be in the middle six month period. The
17 installation, the replacement, you would be in the
18 installation phase.

19 Q. So it would be after, you know, they were all in
20 the hull during the rip-out, then two weeks doing the
21 gasket work where people weren't ripping out pipe
22 insulation?

23 A. Yes.

24 Q. You were asked some questions about the BuShips
25 manual, both now and at your deposition. I believe you

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1 explained this sufficiently well on direct. But am I
2 correct that the BuShips manual and the technical manuals
3 would say what is permitted, but there may be other
4 documents that say even though asbestos insulation is
5 permitted that it wasn't asbestos on the equipment, on or
6 around the equipment?

7 A. That's correct. Think of it as a higher level
8 document. That was a higher level document that would
9 give you some options if you're the designer of what
10 you're going to put in that bill of material. And you
11 might make a decision, either based on weight,
12 availability of whatever the product was that you were
13 trying to install, based on cost or something like that,
14 as to what you actually put on the drawing and put in the
15 ship.

16 Q. All right. I'm going to show you a couple of
17 pages out of Exhibit 16 of your deposition, which is on
18 Garlock's exhibit list. This is a document Mr. Harris
19 showed you, the thermal insulation description and
20 military specifications supporting documents. And the
21 first page is Naval Ships' Technical Manual. You saw
22 that in your deposition, didn't you, Mr. Shoemaker?

23 A. Yes, sir.

24 Q. All right. And within that document --

25 MR. HARRIS: Would you show the date of the

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1 document, please?

2 MR. FINCH: The date of the document is -- it
3 looks like -- it's a composite document, Mr. Harris.
4 One of the dates is 1972, but there are some documents.

5 MR. HARRIS: Thank you.

6 MR. FINCH: -- documents back in here that I'm
7 interested in.

8 BY MR. FINCH:

9 Q. Mr. Shoemaker, what's the date of that document?

10 A. Looks like 8 May 1964 at the top there.

11 Q. And what is this talking about?

12 A. This appears to be the substitution of fiberglass
13 or asbestos.

14 Q. So this is a document from the mid-60s where the
15 Department of the Navy is allowing something insulation
16 -- fiberglass insulation instead of Amosite for the felt?

17 A. That's right.

18 Q. And then Your Honor, we would offer that document,
19 which is a portion of -- well, I'll wait until the end to
20 offer the document.

21 And then a little bit further back there's a
22 document dated October 19 -- 16 October 1964 superseding
23 something from May 1961. Are you familiar with that
24 document, Mr. Shoemaker?

25 A. Again, this is that Mill Spec for insulation.

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1 Right. That's what I'm looking at, I think.

2 Q. And what is this document telling you? It talks
3 about the substitution of?

4 A. Yeah, the substitution of fiberglass or asbestos.

5 Q. For asbestos felt?

6 A. Yeah.

7 Q. Your Honor, I would offer those two documents.

8 They are part of documents on the Garlock exhibit list
9 which is GST-15570. And I guess I would offer them as a
10 ACC-10000 and 10001.

11 THE COURT: All right.

12 MR. HARRIS: No objection, Your Honor.

13 THE COURT: All right. We'll admit them.

14 MR. FINCH: That's all I have.

15 THE COURT: Anything else?

16 MR. HARRIS: Just a couple of followup questions.

17 **RECROSS EXAMINATION**

18 BY MR. HARRIS:

19 Q. Mr. Shoemaker, you were asked about whether it
20 made a difference between a 3,000 to 4,500 RPM grinder
21 versus an 11,000 RPM grinder. It's true you've not done
22 any testing. You're not offering a scientific opinion on
23 that; correct?

24 A. That's correct.

25 Q. All right. That's just your own personal opinion?

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1 A. That's my -- I've run a lot of grinders, but
2 that's my opinion.

3 Q. You don't really know about what that might --
4 what effect that might have in any type of industrial
5 hygiene study?

6 A. That's true.

7 Q. Okay. Just one quick second. The documents that
8 Mr. Finch showed you about the fiberglass insulation.

9 A. Yes.

10 Q. Are you trying -- are you saying that the Navy
11 stopped using asbestos insulation in 1964?

12 A. No. No, not at all.

13 Q. They continued to use a Amosite felt?

14 A. Yes. Yes.

15 Q. Asbestos insulation?

16 A. Yes.

17 Q. They continued to use it until '72. And then even
18 after; 72 they were using up their stock.

19 A. That's true.

20 Q. That could have continued on for at least another
21 couple of three years?

22 A. Yeah. I would suspect, specifically, on the
23 Nimitz and Eisenhower.

24 Q. In fact, as you sit here today you don't know what
25 impact those documents had at all on the percentage of

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1 Amosite or percentage of asbestos insulation that was
2 being used on those ships?

3 A. That's true.

4 Q. You can't put those documents in any context for
5 us; correct?

6 A. Not in terms of the amount of volume of insulation
7 that went on a particular ship. I can just tell you it
8 was allowed at that point.

9 Q. Thank you, Mr. Shoemaker.

10 THE COURT: All right. I think you can step down.
11 Thank you, Mr. Shoemaker.

12 THE WITNESS: Thank you, sir.

13 THE COURT: We'll take a break now until tomorrow
14 at 9:30.

15 (Witness excused at 5:43 p.m.)

16 THE COURT: A couple of announcements. We will
17 need to break tomorrow at 12:30. Shortly before 12:30
18 there is somebody who's going to have some sort of
19 ceremonial thing here from 12:30 to 1:30. I think you
20 can leave all your stuff where it is. It's just some
21 unrelated thing. I'll find out exactly what it is in the
22 morning, but we'll need to break from 12:30 to 1:30.

23 And also, Dr. Longo and Mr. Boelter are not the
24 only people that have created a video. I have a video
25 that was posted on YouTube and you all are -- if

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1 anybody's interested, you can take a look at it.
2 Mr. Badger has the website address there for anybody who
3 wants to see a video of descending some road on a
4 bicycle. It is not a scientifically reliable video. But
5 you if you get bored with what you're doing, check it
6 out.

7 We'll see you in the morning.

8 (Off the record at 5:43 p.m.)
9

10 **CERTIFICATE**

11 I, Tracy Rae Dunlap, RMR, CRR, an Official Court
12 Reporter for the United States District Court for the
13 Western District of North Carolina, do hereby certify
14 that I transcribed, by machine shorthand, the proceedings
had in the case of IN RE: GARLOCK SEALING TECHNOLOGIES,
LLC, et al, Bankruptcy Case No. 10-BK-31607, on July 29,
2013.

15 In witness whereof, I have hereto subscribed my
16 name, this 30th day of July 2013.

17 __/S/__Tracy Rae Dunlap__
18 TRACY RAE DUNLAP, RMR, CRR
19 OFFICIAL COURT REPORTER
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